

Vitaly Shevoroshkin
(ed.)

Dene-Sino-Caucasian Languages



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DENE-SINO-CAUCASIAN LANGUAGES

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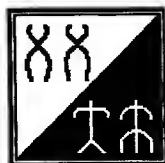
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Dene-Sino-Caucasian Languages

**Materials from the First International Interdisciplinary Symposium
on Language and Prehistory, Ann Arbor,
8.-12. November 1988**

edited
by

Vitaly Shevoroshkin



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-V.S., Ann Arbor, January 1991

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Vyacheslav Ivanov, Alexis Manaster-Ramer and Sergei Starostin at the
Symposium on Language and Prehistory in Ann Arbor
(November 1988)



Above: John Bengtson

Below: Sergei Nikolaev, Oleg Mudrak, Joseph Birnbaum and Sergei
Starostin at J. C. Catford's place, Ann Arbor
(November, 1988)

INTRODUCTION

We have not yet published our materials from the Ann Arbor 1988 symposium, and we are still in the process of translating the materials from the Moscow 1989 conference on Linguistic Reconstruction and the Prehistory of the East; but the Russians held, in February, 1990, a new conference, *Comparative-Historical Linguistics Today* (= KSI)¹, the fourth such conference dedicated to the memory of V. Illich-Svitych.

This fourth collection of the materials of the 1988 symposium includes several pioneering papers on Sino-Caucasian (Dene-Caucasian) languages as well as a list of some 20,000 North Caucasian roots which were reconstructed about a decade ago by S. Starostin and S. Nikolaev: Nikolaev wrote it by hand and sent it to us in 1981; it was used by J. C. Catford in his class on Caucasian languages; Starostin made some corrections to the list during his visit to Ann Arbor in March, 1990.

Our aim is to make these important materials available to scholars both in the West and in the East.

* * *

As I noted in the introduction to our previous collection (*Proto-Languages and Proto-Cultures*, [Bochum: Brockmeyer, 1990] [=PLPC]) recent reconstructions of Sino-Caucasian languages make it possible to identify several American Indian languages as belonging to the Sino-Caucasian language phylum. These are Salishan, Wakashan, Algic, and, maybe, some other languages from Greenberg's Almosan-Keresiouan family (which he considers part of Amerind)² I would like to

¹ *Konferentsiia Sravnitel'no-istoricheskoe ĭazykoznanie na sovremennom etape* 6-9 fevral'a 1990 g. (eds. V. Dybo and R. Bulatov). Moskva, Institut slav'anovedeniia i balkanistiki AN SSSR, 1990.

² For instance, all main pronouns(*₃ [>Sa *c], *n 'ɔ': *w, *ɣw [>Sa *xw] 'thou': *x 'we', etc.), stable numerals, words for body parts, and other stable words are practically the same in Sa and in SC languages. Nostratic and Amerind

concentrate on some peculiarities of Salishan languages which, it seems, underscore their close ties to Sino-Caucasian languages. I would like to underscore the fact that about a decade ago S. Nikolaev correctly identified both Salishan and Algic languages as Sino-Caucasian.

* * *

There are many identities or semi-identities between reconstructed Sino-Caucasian roots (though only the North Caucasian languages of the Caucasus, Sino-Tibetan languages and Yeniseian languages were used in this reconstruction). A few examples follow:³

- [1] Sa[lish] *q'wát- 'carry' (as in M[oses] C[olombian] q'wát-tm- 'carry on back': S[in]o C[aucasian]; N[orth] C[aucasian] *q'wəHV 'hand').

- [2] Sa *c'ə m' (as in MC c'ə m'-ə m' 'suck'): SC č'wVmV 'chew, hold in mouth' (Nostr. *č'aŋ mV 'eat, taste'; cf. V. Orël and O. Stolbova in KSI p.16, no.20). Note Sa -ə- : SC -wV- (-wa- ?), and -ə- : -wä- in [3].

- [3] Sa *qəX- 'horn' (as in MC q(ə)X-mín 'antler, horn'): NC *qwäHV (H=X ?) < SC *qwVrHV 'horn'.

- [4] Sa *Xwəc'- (in Se[chelt]) Xwəc'-qw-láXan 'elbow', Xwəc'-q'w-úya 'wrist': NE[ast]C q'wVč'wV 'elbow, armpit': Sa uvular Xw is a 'weakening' of SC (=NC) *q'w in a compound; cf. Sa *Xəl- 'hand' (as in Se Xəl-iq'w-úya 'finger'), a 'weakening' of *q'wát-, as in [1].

languages are certainly not as close to Sa as SC are; actually, Sa languages belong to SC.

³ For sources, see my introductions to PLPC, as well as to *Explorations in Macrofamilies*, Bochum, Brockmeyer, 1989.

[5] Sa *c'ám' 'bone' (as in MC s-c'ám' etc.) : SC: NC *c'wēmV id. (also: 'leg, foot'); note -a- : -we- ; note Eyak-Athapascan *c'em' id. (after Nikolaev), also with a 'weakening'.

[6] Sa: MC s-k'əm-cin 'lips, mouth': NEC *k'wēm'ti 'lip': -ə- : -wV- [2,3]; -ə- : -wa- [s.v. 4]; -a- : -we- [5].

A few more examples where Sa shows a loss of -w- in a SC sequence -wV- (V=any vowel) follow:

[7] Sa *cum 'eyebrow' : NC *-c'wěmV (*PLPC* p.10, no.22); note also loss of glottalization in Sa).

[8] Sa *pəq 'palm' : NEC *p'weHq'wV id. (cf *PLPC* no.23; note also loss of glottalization in Sa).

[9] Sa : MC kálx 'hand' : NEC *kwǎlʔV id. (but cf. Sa : Sh[uswap] kʷel- 'borrow').

[10] Sa : Sq[uamish] niX 'arm, hand' : NC *nǝgHwV 'arm, shoulder': cf. Sa X- : NC q'w- and Sa Xw- ; NC q'w- in [4].

[11] Sa *hávʔ (as in MC háv' 'warm') : NEC *HěwXV- 'warm up'.

* * *

It is natural that weakened forms frequently appear in Salish, which is younger than North Caucasian to say nothing of Sino-Caucasian. Nevertheless, in some cases Salish preserves archaisms and thus should be taken in consideration (along with other archaic languages) in the reconstruction of Sino-Caucasian. Consider the following:

[12] Sa *hixʷ / *həxʷ 'three' : NC *λH[ě] id. (as in Cez *λɔH); Sa xʷ might be archaic.

[13] Sa *tiq^w (as in Sq *tiq^w 'muddy'); Sa *dVQV 'clay'. First vowel -i- , as indicated by Sa, is confirmed by N[o]s[tratic] *digV 'earth, clay' (see *PLPC*, p. 11). Labiovelar q^w (shown by Sa) is now confirmed by AfAs (=Afro-Asiatic): Agaw. dak'u- 'clay', Bedja dek^{wa} 'dust', etc.; cf. Orël and Stolbova op. cit., p. 15, no. 4. Dene-Caucasian reconstruction should be *diq^wV or the like. SC *čwVmV 'chew, hold in mouth' (see [2] above) should rather be *čwVmHV as shown by Sa *c'əm'; as for the proto-proto-form (SC-Ns[-?]) it should be **C'waŋmV / **C'wamŋV, as shown by Ns *č'aŋmV.

Cf. also other similar cases analyzed in *PLPC* (p. 10-11). As for the Sa *piX^w 'fire', it might be identical to SC, whereas SC *p/bVHV 'heat, burn' should be rather compared with Amerind: Wintu phoi(h) 'fire', etc; this root is different from *piX^w.

In many cases the reconstructions of Sino-Caucasian are not just similar but simply identical to Nostratic which allows us to state that the 'proto-proto-forms' were of the same type as well. This is a remarkable fact which requires explanation; it seems to contradict the well-known thesis that the 'best' cognates between proto-languages are those represented by 'nontrivial' sound correspondences (not appearing on the surface).⁴

-V.S. October. 1990

⁴ Cf. some preliminary remarks in my report "Identities and Semi-identities in Deep Reconstruction" (*Abstracts of Papers Presented at the 1990 meeting on EVOLUTION: FROM MOLECULE TO CULTURE*, Sept. 24-27, 1990, Cold Spring Harbor Laboratory, New York).

DENE-SINO-CAUCASIAN LANGUAGES

ON THE HYPOTHESIS OF A GENETIC CONNECTION BETWEEN THE SINO-TIBETAN LANGUAGES
AND THE YENISEIAN AND NORTH-CAUCASIAN LANGUAGES

by

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['Gipoteza o genetičeskix svjazjax sinotibetskix jazykov s enisejskimi i severnokavkazskimi jazykami', originally published in *Lingvističeskaja rekonstrukcija i drevnejšaja istorija vostoka: tezis i doklady konferencii*, čast' 4: 'Drevnejšaja jazykovaja situacija v vostočnoj Azii' (Moskva: Nauka, 1984), pp. 19-38.]

[Translated by
William H. Baxter III
University of Michigan]

TRANSLATOR'S INTRODUCTION

A number of notational conventions used in this paper may be unfamiliar to some readers. Some of these have to do with the complex consonants of the North Caucasian languages; others are customary among Soviet linguists. I summarize these conventions below.

1. A macron over a consonant indicates an 'intensive' manner of articulation (see the comments of Diakonoff and Starostin 1986:6 on East Caucasian).

2. A dot over or under a consonant indicates glottalized articulation.

3. A circumflex accent indicates a lateral affricate (č, ž) or fricative (š, ž), with which the North Caucasian languages are well supplied.

4. A capital [I] is used with obstruents to mark pharyngealization.

5. The symbol [ʒ] is equivalent to IPA [dz]. Analogously, [ʒ̣] represents a voiced affricate, IPA [dʒ].

6. An acute accent over an obstruent (as in [š̌], [ž̌]) represents alveolo-palatal articulation; [č̌] is equivalent to IPA [tʃ].

7. The symbol [ɣ] represents a voiced uvular stop, IPA [G].¹

8. The symbol [ʔ] represents what is described as a voiced pharyngeal stop (written 'ʔ' in Diakonoff and Starostin 1986).

9. The symbol [ħ] represents a voiceless uvular fricative (IPA [χ]).

1. [In Starostin's original paper, this ɣ is lowered, extending below the line; I have written it on the line in this translation (as in Diakonoff and Starostin 1986) because, when lowered, it seemed too easily confused with a lower-case g in this typeface.]

10. The notation ~ indicates an alternative possible reconstruction; slant lines // around a segment mark a reconstruction about which there is some doubt. A double slash // stands between assumed dialect alternates.²

11. Capital letters are used as cover symbols: C for consonants, V for vowels, H for laryngeal consonants, and R for resonants.

Translator's notes are enclosed within square brackets to distinguish them from Starostin's original notes. To prevent losing information when substituting English glosses for the original Russian ones, the original Russian glosses are transliterated and reproduced in square brackets after the English ones.

For the transliteration of Russian, the system used is the one which is standard among Slavists and common in linguistic work. However, the language family spoken along the Enisej river in Siberia is generally known in English under the spelling *Yeniseian*. In the case of this and other names of languages and language families, the usual English spelling is retained.

The format of presentation has been slightly modified in some cases; for example, Starostin's Swadesh list for Proto-North-Caucasian, Proto-Sino-Tibetan, and Proto-Yeniseian was originally in tabular form, with notes at the end of the table; I have abandoned the tabular format and inserted the notes after the items to which they apply.

Some relevant publications which have appeared since the publication of the original paper have been added to the references, enclosed in square brackets.

For assistance with the translation, I would like to thank Vitalij Shevoroshkin of the University of Michigan and Alexis Manaster-Ramer of Wayne State University (who bear no responsibility for any remaining errors). I am especially grateful to Professor Shevoroshkin for providing me with a copy of the paper, and for helping me gain access to much related material. An earlier version of this translation was presented at the 20th International Conference on Sino-Tibetan Languages and Linguistics, Vancouver, 21-23 August 1987.

ON THE HYPOTHESIS OF A GENETIC CONNECTION BETWEEN THE SINO-TIBETAN
LANGUAGES AND THE YENISEIAN AND NORTH-CAUCASIAN LANGUAGES

SERGEI STAROSTIN

In the present work we wish to attempt to demonstrate a genetic relationship among three language families of the Old World: North Caucasian, Yeniseian, and Sino-Tibetan. It is necessary to say that hypotheses about such a relationship have been stated repeatedly in various works (cf. the short bibliography in Starostin 1982). However, as is well-known, a combination of three conditions is necessary for the demonstration of genetic relationship: (1) the presence of a sufficient quantity of lexical comparisons; (2) the presence in the majority of these comparisons of a system of regular phonetic correspondences; and (3) the presence among these comparisons of a sufficient collection of so-called 'basic vocabulary'. Morphological similarities are also highly important; however, in the present case they fall to second place. (While there are obvious morphological

2. [For these conventions see Starostin 1982:145n.]

parallels between the North Caucasian and Yeniseian languages, comparison with Sino-Tibetan is hampered by the almost complete elimination in these languages of a morphological system as such.)

Until now the three requirements enumerated above could not be fulfilled for the language families under consideration, above all because of the lack of reconstructions for Proto-North-Caucasian, Proto-Yeniseian, and Proto-Sino-Tibetan. At the present time, these gaps in our knowledge have, to a significant degree, been removed: on the reconstruction of Proto-North-Caucasian see, in particular, Nikolaev and Starostin 1984; on the reconstruction of Proto-Yeniseian see Starostin 1982; the works of Shafer (1966-74) and Benedict (1972) have been an important contribution to the reconstruction of Proto-Sino-Tibetan, but at the present time the author, together with I. I. Pejros, is preparing for publication an etymological dictionary of the Sino-Tibetan languages, with a new Sino-Tibetan reconstruction. Thus there has arisen the real possibility for the comparison of, and the establishment of sound-correspondences among, the proto-languages of these three families.

We cite below the system of correspondences among the three proto-languages under consideration, in the area of obstruents:³

	*	PNC	PST	py ⁴
[1]	*p	p	ph//bh, -p	p
[2]	*b	p̃//b	p(h), -p	p//b
[3]	*p̃	p̃	b, -p	b
[4]	*t	t	th//dh, -t	d
[5]	*d	t̃//d	t(h), -t	t
[6]	*t̃	t̃	t//d, -t	d
[7]	*k	k	k//gh, -k ⁵	g
[8]	*g	k̃//g	k(h), -k	k
[9]	*k̃	k̃	k(h)//g, -k	g//b
[10]	*s	s	s, -s̃	s (/d)
[11]	*s̃	s̃	s, -s̃	s (/d)
[12]	*ts	c	ch-, -t	č//s
[13]	*ds	c̃//z	s-, -zh-, -t	č//s

3. In this short summary of correspondences we do not comment on the principles governing the complementary distribution of the reflexes of phonemes. Capital letters in the table (and in the lists of lexical correspondences) are used in those cases where the positional features of the consonant being compared are known, but the laryngeal features are not. The notation -C- in the Proto-Sino-Tibetan column symbolizes, not intervocalic position, but initial position in those cases where the first syllable has been dropped (see remarks above on root structure).

4. The correspondences of voicelessness/voicing in Proto-Yeniseian are sometimes violated, if several obstruents are present in the root (as a result of processes of assimilation/dissimilation).

5. In examining the ST material, it is necessary to take account of the common alternation -k/-ŋ in final position, as a result of which -ŋ is sometimes found in place of the expected -k.

[14]	*t̥s	ç	ch-, -ʒh-, -t	c//s
[15]	*t̥s̄	cc	č-, -c-, -t	s
[16]	*d̥s̄	ʒʒ	?-; -ʒh-, -t	ʒ
[17]	*t̥s̄	çç	ʒh-//č-, -ʒ-, -t	c//s
[18]	*st	c	ʒ-, -ʒh-, -s (?)	t
[19]	*sd	ʒʒ	ch-, -ʒh-, -ʒ	t
[20]	*st̥	ç(ç)	s, -ʒ	t
[21]	*s̄	s	š, -ø	s
[22]	*š̄	š	š (?//s), -ø	s (/d)
[23]	*t̥s̄	č	č//ʒ, -t	č-//ʒ-, s
[24]	*d̥s̄	č//ʒ	č-	č-, s (/c)
[25]	*t̥s̄	ç	č//ʒh-, -t	č-//ʒ-, s
[26]	*t̥s̄	čč	č-	č-
[27]	*d̥s̄	čč//ʒʒ	č ~ ʒ, -ʒ	s- (?), ʒ
[28]	*t̥s̄	çç	č(h), -ʒ	ʒ
[29]	*st̥	ç	ʒ, -t	t
[30]	*sd̥	č//ʒ	č(h)-	t
[31]	*st̥	ç	ʒ	t
[32]	*s̄	s̄	s, -ø	s
[33]	*š̄	š̄	s, -ʒ	s (/d)
[34]	*t̥s̄	č	č-, -t	ʒ-, s
[35]	*d̥s̄	č//ʒ	č-, -t	ʒ-
[36]	*t̥s̄	ç	č//š, -t	c//s
[37]	*t̥s̄	čč	č-, -ʒ	-s-
[38]	*d̥s̄	čč//ʒʒ	č-, -t (?)	-s- (?//ʒ-)
[39]	*t̥s̄	çç	č-, -t	s
[40]	*s̄	š̄	l	ø-, l//l̄
[41]	*s̄	š̄	l	ø-, l//l̄
[42]	*k̄s̄	č	l-, -č-, -k	ʒ-, r
[43]	*ḡs̄	č//ʒ	l-, -č-, -k	k-, r
[44]	*k̄s̄	ç	l//č-, -k	j-//k-, r
[45]	*k̄s̄	čč	-č-	ʒ
[46]	*ḡs̄	čč//ʒʒ	l//č-, -k	k-, l
[47]	*k̄s̄	çç	l-, -č-, -k	k-, l//l̄
[48]	*s̄k (= *xk)	čč	-k	-ʒ-
[49]	*s̄g (= *xg)	gg	gh-, -k	q-, -x-//ʒ-
[50]	*s̄k̄ (= *xk̄)	k̄k̄	kh-, -k	k
[51]	*x	x	ʒ//q(h), -ø//k	x//ʒ
[52]	*x̄	x̄	ʒ//q(h), -ø//k	x//ʒ
[53]	*kx	q	k ~ g	x
[54]	*gx	q̄//g	k	k ~ g
[55]	*k̄x	q̄	K	g//x
[56]	*k̄x̄	qq	k	k

[57]	*g \bar{x}	$\bar{q}\bar{q}$ //99	g (?)	k
[58]	*k \bar{x}	$\dot{q}\dot{q}$	k(h)	g//x
[59]	*b	b	b//k(h), -b//-k	b//q
[60]	*b	b	b//qh, -k	b//q
[61]	*kb	q	q, -k	b-, q//9
[62]	*gb	\bar{q} //9	q(h)//9, -k	b, q
[63]	*kb	\dot{q}	q(h)//9h, -k	b-, q//9
[64]	*kb	qq	q, -k	b-, q
[65]	*gb	$\bar{q}\bar{q}$ //99	q(h)//9, -k	q//9
[66]	*kb	$\dot{q}\dot{q}$	k/g(h), k	b//q

In addition it is necessary to make the following remarks on the phonetic correspondences among the languages under consideration:

1) The original root structure (CVCV or CVCVCV, where C may represent a single consonant or a cluster) is preserved best of all in Proto-North-Caucasian and Proto-Yeniseian (although in the latter the final vowel may be dropped). In Proto-Sino-Tibetan, all roots are reduced to the type CV(C) on account of dropping of final vowels (or of non-final vowels, if there are more than one). Furthermore, in the majority of cases the first syllable of the word is dropped in Proto-Sino-Tibetan, if it begins with a laryngeal consonant;⁶ in such a case the final vowel is preserved (i.e., the structure HVCV > CV in Proto-Sino-Tibetan). Initial syllables with the sonorants *w* and *j* usually undergo the same transformation. It must be pointed out, however, that in a number of cases initial syllables with laryngeals, *w* or *j* are preserved (possibly under the influence of accentual factors). Such accentual reasons, apparently, conditioned the development CVRV > CRV in a number of cases.

2) Sonorant consonants are subject to rather significant transformations. In Proto-North-Caucasian they are well preserved on the whole (with the exception of the development * η > *m*//*n* and the substitution of obstruents for sonorants in roots where obstruents were originally absent). In Proto-Sino-Tibetan fluctuations of *w*//*j* are found (for the loss of these consonants in initial position, see above), and also *l*//*r* (in place of original **l*, **z*); we note, furthermore, a specific development *-rH- > - η . In PY, sonorants were transformed in initial position: **m*- > *w*//*p*; **n* > *d*-; * η > (*m*) > [b?];⁷ **r*- > *t*- (// \emptyset); **l*, **z* > *d*- (initial \bar{r} , apparently going back to a special cluster of the type **rj*, is preserved only in a few cases). Medially, sonorants are preserved as a rule (it is necessary to take note of the particular development of sonorants in combination with following laryngeals: *-mH-, *- η H- > - η -, *-nH- > -r-). In combination with obstruent consonants,

6. On the other hand, for a whole series of verbal roots, one may assume the addition of a first syllable *(?)V- in Proto-North-Caucasian (for the convenient addition of class markers). In such cases, evidently, neither Proto-Yeniseian nor Proto-Sino-Tibetan displays anything corresponding to this first syllable. In general, the structure of the verbal root underwent (for morphological reasons) rather substantial changes in Proto-North-Caucasian, which require special consideration.

7. [A symbol seems to be missing from the MS here, but it appears from the second item of example 29 below that initial * η > *b* in Yeniseian.]

sonorants are usually unstable: in such cases they are most often lost in PY, but Proto-Sino-Tibetan apparently differentiates two types of combinations (*-RC- > PST -R, but *-CR- > PST -C). Proto-Yeniseian usually preserves sonorants in combination with laryngeals, but Proto-Sino-Tibetan may lose them (just as in combinations with obstruents).

3) The correspondences in Proto-Yeniseian and Proto-Sino-Tibetan of a rather large number of Proto-North-Caucasian laryngeal and pharyngeal consonants are still not fully clear; in the majority of cases they simply fall away, and those few cases in which syllables with laryngeals are preserved (in Proto-Sino-Tibetan) are so far insufficient for the establishment of reliable correspondences.⁸ Also unclear are the correspondences of the rare Proto-North-Caucasian voiced spirants (we note only the rather reliable correspondence PNC *ʏ : PST *-j : PY *-9-).

A great deal of work remains to be done in the area of the comparative phonetics of the three families under consideration (in particular, for the establishment of correspondences in the vowel system); for this reason, the correspondences formulated above are still of a preliminary nature.

After all these preliminary remarks, we pass on to the demonstration of lexical correspondences among North Caucasian, Sino-Tibetan, and Yeniseian. We begin with the coincidences among the proto-languages of these three families within the bounds of the 100-word list of Swadesh.⁹

1. 'all [ves']'

PNC *cV-, PST *chia

2. 'ashes [zola]'

PNC *jəmççwV, PST *čā

3. 'bark of tree [kora]'

PEC *qwalɪV, PST *qhrōw (~ kh-)

PST *q(h)wɪn, PY *ʔi9in

8. In Proto-Yeniseian and Proto-Sino-Tibetan in non-initial position there are 'prosodic' laryngeals (PY *ʔ, PST *H); so far I have not succeeded in establishing correspondences of these with any segmental units of Proto-North-Caucasian. It is not impossible that they reflect certain ancient prosodic characteristics (phonational or accentual).

9. In many cases it proves difficult to determine the basic word which serves in Proto-North-Caucasian, Proto-Sino-Tibetan, or Proto-Yeniseian for the expression of a certain concept. Sometimes such a word cannot be reconstructed at all, and various roots which are preserved in daughter languages might have a claim to proto-linguistic antiquity; sometimes, on the other hand, several expressions can be reconstructed for a single concept, the semantic distinctions among them being unclear, and it is uncertain which of them should be given preference (however, such problems are encountered also in the glottochronological analysis of modern languages). Such cases make lexicostatistical calculations more difficult, but they by no means make them impossible.

From the Yeniseian material we may bring to the comparison Ket qōl 'dandruff [perxot]' (for which, it is true, a Samoyedic etymology is not excluded; see Xelimskij 1982:244).

-
4. 'big [bol'soj]'
 PNC *ʔaḥIV, PY *ḥe?
 PWC *dV, PST *taḵ
-

5. 'bird [ptica]'
 PST *tḭwH, PY *duma
 Cf. PNC *tḭmḥV 'owl [sova]'.
-

6. 'to bite [kusat]'
 PNC *ʔV99V, PST *k(h)aj
-

7. 'blood [krov]'
 PEC *hwēnHV, PST *(s)y^wḭj
 PEC *čăḡwV, PY *sur

The basic (and, evidently, archaic) Proto-North-Caucasian root with the meaning 'blood' is *hwēnHV (PWC *ḡa 'blood', apparently, is an innovation). The root *čăḡwV has the meaning 'blood' only in the Nakh and Hurrian-Urartian languages; in the others it means 'alive, life'. In PY *sur means 'blood' and 'red' (cf. in this connection PST *čăk 'red, red metal -- gold [zoloto]').

8. 'bone [kost]'
 PNC *ʔwērēč(w)V, PST *rāk (//-ḡ)
 Cf. PY *ʔuḭ-aḡ (where -aḡ is the usual suffix in terms for body parts; cf., for example, No. 57) 'rib [rebro]'.
-

9. 'breast [grud]'
 PST *ʔrāk (//-ḡ), PY *təga (< *r-)
 Cf. PNC *jēr(ě)kwḭ 'heart [serdce]'.
-

10. 'cold [xolodnyj]'
 PNC *čwērHV, PY *čVr₁-
-

11. 'dog [sobaka]'
 PNC *ḥweḭje, PST *qh^wḭj
-

12. 'to drink [pit]'
 PNC *ʔiḡwV-n-, PY *ut-
-

13. 'dry [suxoj]'
 PNC *ʔi99wVr, PST *qār (~ k-), PY *qVr₁- (~ -l-)
-

14. 'ear [uxo]'
 PEC *ʔōḭnhwV, PST *nāH, PY *ʔo-gde (< *ʔon-gde = PA *han-ḵiṭa)
-

Evidently, the reconstructed Proto-North-Caucasian root *leḥIV 'ear [uxo]' (among the Eastern Caucasian languages it is found in Nakh and Dargin) was originally a verb; in Proto-West-Caucasian it means both 'ear [uxo]' and 'hear [slysat']'. For this reason PEC *ʔōInḥwV 'ear [uxo]' is probably more archaic.

15. 'to eat [est']'

PST *ʒhǎH, PY *si9-

16. 'eye [glaz]'

PNC *ʔwilhi, PY *de- (< *le-)

17. 'to fly [letat']'

PNC *purV, PST *phur (//bh-)

18. 'foot/leg [noga]'

PNC *šēiHV, PST *lǎH

19. 'full [polnyj]'

PNC *ʔōçV, PY *ʔute

20. 'to give [davat']'

PEC *ʔiʒʒV, PST *lǎH

21. 'good [xorošij]'

PEC *ʔōḥwV (~ -ö-), PY *(h)aq-

22. 'green [zelenyj]'

PEC *śInV (~ -ǎ-), PST *sriaṇ (*r-siaṇ), PY *son-

23. 'hair [volosy]'

PST *chām, PY *cəṇe

PEC *ki(w)rV, PST *kra

Cf. PNC *čwěHēmV 'eyebrow, eyelash [brov', resnica]' (it is characteristic that also in the Sino-Tibetan languages the root *chām is used only in the meaning 'hair on the head [volosy na golove]', in particular, 'eyebrow, eyelash [brov', resnica]').

24. 'hand [ruka]'

PNC *q̄q̄weIIV, PY *xire

Cf. PST *Khwār 'fist, handful [kulak, prigoršnja]'.

25. 'head [golova]'

PWC *sqI'a, PY *ci9V

PEC *wēnçV, PST *lūH

It is unclear which of the two roots can claim Proto-North-Caucasian antiquity.

26. 'to hear [slysat']'

PST *Ta-s, PY *-VtV

27. 'heart [serdce]'

PST *siam, PY *sin(V)b-

28. 'horn [rog]'

PNC *qwa/HV/, PST *Krua (< *r-9ua?), PY *hɔ?

29. 'I [ja]'

PNC *zo, PY *ʔaʒ

PEC *nV//*mV, PST *ʔā, PY *b-

The forms *zo and *nV//*mV in Proto-North-Caucasian (= *ʔaʒ and *b- in PY), apparently, formed a suppletive paradigm of the first-person pronoun (an analogous situation is observed also in the second person; see below). Proto-Sino-Tibetan preserved only the second part of the original paradigm.

30. 'to know [znat']'

PNC *ʔāmcV, PST *sia, PY *ʔVt-

31. 'knee [koleno]'

PST *pūt (~ *-š-), PY *bat-

32. 'leaf [list]'

PNC *čāpi, PST *čēp (// *lāp), PY *jāpe

33. 'liver [pečen']'

PST *sīn, PY *seŋ

Cf. PNC *čwāmʔl 'bile/gall [želč']'.

34. 'long [dlinnyj]'

PNC *ʔērVqV, PST *rīŋ

PNC *huq(I)V(n)-, PY *ʔux-

Both Proto-North-Caucasian forms appear somewhat arbitrary, since the meaning of both roots varies greatly in the modern languages (along with the meaning 'long [dlinnyj]' are found the meanings 'distant [dalekij]', 'high/tall [vysokij]', 'large [bol'soj]' and others) and the original meanings of each of them are not fully clear. With PNC *huq-V(n), PE *ʔux- compare, probably, PST *kāw (~ g-) 'high/tall [vysokij]'.

35. 'moon [luna]'

PNC *wəmcço, OC *ŋʷat, PY *ʔVsu-j

36. 'mouth [rot]'

PEC *kwēiʔV, PST *Khō(w)H, PY *hōwe

37. 'neck [šeja]'

PST * $\text{g}\bar{\text{a}}\eta$, PY * $\text{k}\bar{\text{a}}\text{g}\bar{\text{a}}\text{n-tv}$
 Cf. PEC * $\text{99w}\bar{\text{a}}\text{m99V}$ 'throat, gullet [gorlo, glotka]'.

38. 'new [novyj]'
 PNC * $\text{c}\bar{\text{y}}\text{n7V}$, PST * $\text{s}\bar{\text{y}}\text{n}$ (// $\bar{\eta}$), PY * tur- (~ -l-)

39. 'night [noč']'
 PNC * $\text{H}\bar{\text{i}}/\bar{\text{š}}/\text{win}\bar{\text{a}}$, PY * si9 (< * sin-9)

Cf. PST * sen 'night, darkness [noč', temnota]' (although this is evidently not the basic Proto-Sino-Tibetan root with the meaning 'night [noč']' and therefore we do not include it in the list).

40. 'nose [nos]'
 PST *(s)na, PY *(h)an

41. 'not [ne]'
 PNC * mV , PST * ma , PY * $\text{w}\bar{\text{a}}\text{-}$
 PEC * fV , PST * ta , PY * $\text{ta-}/*\text{?at-}$

Originally * mV was apparently a negative particle, while * fV was a prohibitive one.

42. 'one [odin]'
 PNC * $\text{h}\bar{\text{a}}\text{c}\bar{\text{a}}//*\text{c}\bar{\text{a}}\text{h}\bar{\text{a}}$, PST * ?it , PY *($\text{h}\bar{\text{u}}\text{-}$)sa

43. 'rain [dožd']'
 PEC * ?i-ywV 'to rain', (derived) * ywerfV 'rain, PST *(r)- $\text{qh}\bar{\text{a}}\text{H}$, PY * xur (= PEC * ywerfV)

44. 'red [krasnyj]'
 PEC * $\text{?Iw}\bar{\text{a}}\text{m}\bar{\text{t}}\text{V}$, PST * ta

45. 'road [doroga]'
 PNC * $\text{?}\bar{\text{e}}\bar{\text{r}}\bar{\text{e}}\bar{\text{m}}\bar{\text{q}}\bar{\text{q}}\text{Iu}$, PST * $\text{r}\bar{\text{5}}\text{k}$ (// $\bar{\eta}$)

46. 'sand [pesok]'
 PEC * $\text{s}\bar{\text{o}}\text{re}$, PST * $\text{sra}\bar{\text{j}}$

47. 'say [skazat']'
 PEC * $\text{?i}\bar{\text{3}}\bar{\text{3}}\text{V}$, PST * $\text{l}\bar{\text{a}}$

48. 'grass [trava]'
 PNC * $\text{w}\bar{\text{i}}\text{cV}$, PST * $\text{chu}\bar{\text{a}}$

49. 'to sit [sidet']'
 PNC * $\text{?}\bar{\text{o}}(\text{r})\text{swV}$, PY *-VsV
 PNC * $\text{?i}\bar{\text{q}}\text{wV}$, PST * $\text{k}\bar{\text{a}}$ (~ q-), PY * xu-

The original difference in meaning between these two roots is not fully clear (we note that the second root, in both the North Caucasian and the Sino-Tibetan languages, in addition to the meaning 'to sit [sidet']', may also acquire the meaning 'to be [byt']').

-
50. 'to sleep [spat]'
PEC *ʔVwš-Vn-, PY *xus-
-
51. 'small [malenkij]'
PNC *ʔihwV, PST *tiaj (// *tiaw?)
-
52. 'smoke [dym]'
PNC *ggwĩnʔV, PST *gh(i)u
-
53. 'stand [stojat]'
PWC *gə, PY *(d)-VK- (~ -g-)
PST *rjǎp, PY *ʔip-
-
54. 'star [zvezda]'
PNC *ʒʒwarʔi, OC *sēŋ
PST *(s)qar, PY *qʒqa (< *qʒrqa)
-
55. 'sun [solnce]'
PNC *wira99V, PY *(h)i9a
-
56. 'swim [plavat]'
PNC */h/ömʒV, PY *-sũj
-
57. 'tail [xvost]'
PEC *mǒyV, PST *mǒjH, PY *pu9-aʒ
-
58. 'this [ëtot]'
PST *tə, *te, PY *t/u/
PNC *ʔi- PST *ʔi
- With PST *tə, *te, PE *t/u/ 'this [ëtot]' cf. PNC *dVSV 'that' (we note, however, that it is rather difficult to determine the original meanings in a system of deictic pronouns).
-
59. 'that [tot]'
PNC *ʔa, PST *ʔa
-
60. 'thou [ty]'
PNC *ʔo, PY *ʔu//ʔVw
PEC *ʔu//ʔʔVY-, PST *KʷV(j), PY *KV-//ʔʔVK-

The situation with the second-person pronouns is completely analogous to that described above (see no. 29) for first-person pronouns: of two suppletive bases, Proto-Sino-Tibetan preserved only the second. (In Proto-Sino-Tibetan

there is also the root *năH/*năŋ 'thou [ty]', for which external parallels have so far not been discovered.)

61. 'tongue [jazyk]'

PNC *mēlççi, PST *mlaj

PST *čep, PY *ʔalVp

It is interesting to note Hattic *alup* 'tongue [jazyk]', whose connection with the Yeniseian root was pointed out by V. V. Ivanov (Ivanov 1985). The relationship between the two terms for 'tongue [jazyk]' is still unclear.

62. 'two [dva]'

PNC *q̄lwä, PST *k-nij(s) (= PY *xi-na), PY *xi-na

In Proto-Sino-Tibetan and PY, apparently, a complex morphological formation is represented (the first part of which finds a correspondence in Proto-North-Caucasian).

63. 'walk [idtɪ]'

PEC *ʔVʔwV-n-, PST *ʔwä(ŋ), PY *hVJV-ŋ

64. 'water [voda]'

PEC *xänʔi, PY *xur₁

Cf. PST *bu(-s) 'moisture/liquid [vlaga]'.

65. 'what [čto]'

PNC *ša, PY *ʔas-// *sV-

Cf. PST *su 'who [kto]'.

66. 'white [belyj]'

PEC *kalhV, PST *kār

67. 'woman [ženščina]'

PEC *širdV, PY *ʔa-lit

68. 'yellow [želtyj]'

PNC *ʔeqqWV, PST *q̄wä(-ŋ)

We see that the agreements among Proto-North-Caucasian, Proto-Sino-Tibetan, and Proto-Yeniseian in the area of basic vocabulary are numerous enough to establish a genetic relationship among the three families under consideration. We propose to call the macrofamily which includes these three families 'Sino-Caucasian'.

The total number of lexical comparisons we have at the present time exceeds 500. The size of the present publication does not permit us to cite all the material here; therefore we limit ourselves only to the citation of roots which are represented in all three families simultaneously, arranging them by thematic groups. (A certain number of such roots [i.e. roots present in all three families] have already been cited above -- see in the list nos. 3, 5, 7, 8, 9, 13, 14, 22, 23, 24, 28, 29, 30, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 43, 49, 57, 58, 60, 62, 63, 64, 65. We will not repeat these below.)

1. TERMS CONNECTED WITH THE BODIES OF HUMANS OR ANIMALS

-
- 1.1 PL *piImp//p̌iImp 'knee [koleno]'
 PST *bōp 'leg, calf of leg [noga, ikra nogi]'
 PY *pāp- 'hip, thigh [bedro, ljažka]'
-
- 1.2 PEC *rəčwV 'anus'
 PST *rjēt 'arse [zad]'
 PY *rōs- 'vulva'
-
- 1.3 PEC *nēwqu 'pus; tear [gnoj; sleza]'
 PST *nōk (/--ŋ) 'pus [gnoj]'
 PY *dok-ŋ id.
-
- 1.4 PEC *ḥiwaḥV 'paw [lapa]'
 PST *k(h)ap 'fork of the legs, groin [razvilka nog]'
 Ket. qəp-ku 'calves of the legs [ikry nog]'
-
- 1.5 PEC *ḡaḡarV 'throat [gorlo]'
 Tib. (without reduplication) m-gur 'throat, neck [gorlo, šēja]'
 PY *kəkVr (~ g-) 'throat [gorlo]'
-
- 1.6 PEC *kwirV (~ -ī-) 'crop, craw [zob]'
 PST *khrōw (~ gh-) 'throat [gorlo]'
 PY *gər-V3 (~ k-) 'throat [gorlo]'
-
- 1.7 PEC *maŋu (probably < *naŋu with regressive labialization) 'brain [mozg]'
 PST *nūH id.
 PY *doʔ-ŋ id. (-ŋ -- plural suffix)
-
- 1.8 PEC *yēpV 'leg [noga]'
 (?) PST *g/ū/p 'leg, knee [noga, koleno]'
 Jug ḥəʔp 'sole of the foot [podošva]'
-
- 1.9 PEC *pēHērççV 'intestine [kiška]'
 PST *Pik 'intestines [kishki]'
 PY *piʔi1 'intestine [kiška]'
-
- 1.10 PEC *q̄iweḥV 'beak, bill [kljuv]'
 (?) PST *kēp (~ q-) 'jaw, cheek [čeljust', ščeka]'
 PY *kup (~ g-) 'beak, bill [kljuv]'
-

- 1.11 PEC *məṭV 'face [lico]'
 PLB [Proto-Lolo-Burmese] *mwat 'head [golova]'
 PY *batt- (~ w-) 'face [lico]'
-
- 1.12 PEC *q̥lVntV 'elbow, knee [lokot', koleno]'
 PST *kut 'arm/hand, bone [ruka, kost]'
 PY *g/i/d 'elbow [lokot]'
-
- 1.13 PN *čiš 'urine [moča]'
 PST *či 'urine [moča]'
 PY *žəs id.
-
- 1.14 PEC *bVm̩V 'leg, hoof [noga, kopyto]'
 PST *phöl 'ankle; calf of the leg [lodyžka; ikra nogi]'
 PY *bul 'leg [noga]'
-
- 1.15 PEC *ṭwəpV 'finger/toe [palec]'
 Tib. theb 'thumb/big toe [bol'šoj palec]'
 PY *təp-ałče 'thimble [naperstok]'
-
- 1.16 PN *tug//*tuḵ 'saliva, spittle [sljuna, plevok]'
 PST *Tok 'saliva [sljuna]'
 Kot. tuk id.
-
- 1.17 PNC *q̥q̥wV(1)ççV 'armpit, embrace (n.) [podmyška, ob"jatiĵa]'
 PST *KVl̩ 'armpit [podmyška]'
 PY *qoí- (~ ḡ-) 'armpit [podmyška]'
-
- 1.18 PEC *pVrVḡV 'bubble/bladder [puzyr]'
 PST *phrēw 'blister, swelling [voldyr', opuxol']'
 PY *pəʔr̩ 'bubble/bladder [puzyr]'
-
- 1.19 PEC *q̥wanʔu 'face, cheek, flat surface [lico, ščeka, ploskaja poverxnost]'
 PST *Kʷaŋ 'cheek [ščeka]'
 PY *KVn 'face, mouth [lico, rot]'
-
- 1.20 PEC *p̥warkwV 'palm [ladon]'
 (?) PST *phāk 'shoulder-blade, shoulder [lopatka, plečo]'
 PY *pVK- 'arm/hand [ruka]'
-
- 1.21 PEC *p̥weIḵV (~ -q̥w-) 'hand, palm [kist' ruki, ladon]'
 PST *biak (~ bh-, p-) 'arm/hand [ruka]'
 PY *boq- 'arm/hand, palm [ruka, ladon]'
-

- 1.22 PEC *kVmV 'armful [oxapka]
 PST *kõŋ (~ g-) 'to hold with two hands [deržat' dvumja rukami]
 PY *hǎn 'fathom/armspan [sažen']' (cf. also Kot. ham-al 'armful [oxapka]')
-
- 1.23 PNC *š/ǎ/bV 'kidney [počka]
 PST *č(h)uap 'lung [legkoe]
 PY *tVp-Vl 'spleen [selezenka]
-
- 1.24 PC [Proto-Cezian] *pu 'side [bok]
 PST *phǒ 'viscera [vnutrennosti]
 PY *pu(j) 'viscera, heart, stomach [vnutrennosti, serdce, život]
-
- 1.25 PNC *ʔā9wāiV 'side [bok]
 PST *qālH 'back; cheek [spina; ščeka]
 PY *hol- 'side, half; cheek [storona, polovina; ščeka]
-
- 1.26 PNC *99IwInV 'arm/hand, shoulder [ruka, plečo]
 OC *kēn 'shoulder [plečo]
 PY *ken- id.
-
- 1.27 PNC *pwōlqIV 'filth, pus [grjaz', gnoj]
 PST *phāk (//~ŋ) 'filth, faeces [grjaz', kal]
 PY *poʔq 'excrement [èkskrementy]
-

For roots meaning 'blood [krov]', 'bone [kost]', 'breast [grud]', 'ear [uxo]', 'eye [glaz]', 'foot/leg [noga]', 'hair [volosy]', 'hand [ruka]', 'head [golova]', 'heart [serdce]', 'horn [rog]', 'knee [kolenno]', 'liver [pečen]', 'mouth [rot]', 'neck [seja]', 'nose [nos]', 'tail [xvost]', 'tongue [jazyk]' see the Swadesh list above.

2. TERMS OF KINSHIP AND SOCIAL POSITION

-
- 2.1 PNC *u/r-íććwi (with various class markers) 'brother, sister [brat, sestra]
 PST *čšjH 'older brother or sister [staršij brat ili sestra]
 PY *b-is(a) 'brother, sister [brat, sestra]
-
- 2.2 PNC *qarHV 'cousin [dvojurodnyj (brat, sestra)]
 PST *Kwrij 'nephew, niece; son-in-law, daughter-in-law [plemjannik, -nica; zjat', nevestka]
 PY *har- (~ q-) 'grandson, granddaughter [vnuk, vnučka]
-

- 2.3 PWC *pV 'son, daughter [syn, doč']'
 PST *PoJ 'son, child; to be born [syn, rebenok, roždat'sja]'
 PY *pu?- 'son, daughter [syn, doč']'
-
- 2.4 PEC *mVnxV 'man, male [mužčina, samec]'
 PST *nōm 'man, person [mužčina, čelovek]'
 PY *pix- 'man [mužčina]'
-
- 2.5 PNC *ʔoṗV(j) 'father [otec]'
 PST *pā(H) id.
 PY *ʔob id.
-
- 2.6 PNC *mVIḡwV 'son-in-law [zjat']'
 PST *māk id.
 PY *pVḡV// *ʔV-mVḡV 'nephew, niece [plemjannik, -nica]
-
- 2.7 PEC *pāHažžV 'boy, young one (of animal) [mal'čik, detenyš]'
 PST *pōk 'child, servant [rebenok, sluga]'
 PY *pVl- 'child [rebenok]'
-
- 2.8 PWC *(a)ḡə 'prince [knjaz]'
 PST *q(h)ōwH id.
 PY *ḡij(e) id.
-

3. NAMES OF ANIMALS

-
- 3.1 PNC *cwarggwV 'squirrel, marten [belka, kunica]'
 PST */s/rāiḡ 'squirrel [belka]'
 PY *saʔqa (< *saʔḡa) id.
-
- 3.2 PNC *ḡweIiV 'jackdaw [galka]'
 PST *kri 'crow [vorona]'
 PY *kor-VT (~ g-) id.
-
- 3.3 PNC *riggwV 'mouse, marten [mys', kunica]'
 PST *ruak 'mouse [mys']'
 PY *täḡ-Vr 'otter [vydra]'
-
- 3.4 PEC *pōHēmṭV 'duck [utka]'
 (?) PST *Pṽt 'kind of pheasant [vid fazana]'
 PY *bānt-ən 'wild duck [krjakva]'
-

- 3.5 PEC *wörčwVIV 'snake, worm [zmeja, červ]'
 PST *p-rül 'snake [zmeja]'
 PY *?urol 'leech [pijavka]'
-
- 3.6 PEC *žā/n/ǵwV 'small bird, sparrow [melkaja ptica, vorobej]'
 OC *čekW 'sparrow [vorobej]'
 PY (with reduplication) *čičVκ 'wagtail [trjasoguzka]'
-
- 3.7 PEC *wirǵIV 'aurochs [a European bison, *Bos bonasus*], aurochs-leader
 [tur, tur-vožak]'
 PST *rjuk 'deer [olen]'
 PY *ʔiʔǵ 'buck [byk-olen]'
-
- 3.8 PNC *kwaččV 'donkey, mare [osel, kobyla]'.
 (?) Tib. r-god 'mare [kobyla]'
 PY *kuʔs 'horse [lošad]'
-
- 3.9 PNC *jvcwe 'small animal (squirrel, badger, mouse) [melkoe životnoe
 (belka, barsuk, myš')]'
 PST *jus 'small animal (mouse, marten, hare) [melkoe životnoe (myš',
 kunica, zajac)]'
 PY *jūta 'mouse [myš']'
-
- 3.10 PNC *jəmco 'ox [byk]'
 PST *chu (~ -o) 'kind of ox [vid byka]'
 PY *ʔise 'meat [mjaso]'
-
- 3.11 PWC *šwV(rV) 'deer [olen]'
 PST *š(w)a id.
 PY *sēr₁e id.
-
- 3.12 PNC *leǵIwV 'large bird, eagle [bol'saja ptica, orel]'
 PST *lāk (//-ǵ) 'eagle, hawk [orel, jastreb]'
 PY *dVʔ9V 'eagle [orel]'
-
- 3.13 PNC *bēHērčI 'wolf [volk]'
 OC *prāts 'mythical predatory animal [mifičeskoe xiščnoe životnoe]'
 PY *pes(-tap) 'glutton [a Eurasian variety of the wolverine *Gulo
 gulo*] [rosomaxa]'
-
- 3.14 PNC *fV9wV 'cock [petux]'
 PST *Toǵ 'peacock [pavlin]'
 PY *tōq 'duck (goldeneye) [utka (gogol')]'
-
- 3.15 PNC *čirVǵV (?// *čirVhV 'caterpillar [gusenica]'
 PST *chiāǵ (~ s-) 'lizard [jaščerica] (-ǵ < *-rH)
 PY *cVrV 'lizard [jaščerica]'

Cf. also the roots 'bird, owl [ptica, sova]', 'dog [sobaka]' in the Swadesh list above.

4. THE PLANT WORLD

- 4.1 PEC *mäInčċi 'nettle [krapiva]'
PST *mat id.
PY *ʔə-mas 'prickle/thorn [koljučka]'
- 4.2 PEC *swViHV 'ramson [broad-leaved garlic, *Allium ursinum*] [čeremša]'
PST *sōi 'onions [luk]'
PY *saʔr 'a kind of strong-smelling grass [vid paxučej travy]' (in the contemporary languages 'tobacco [tabak]')
- 4.3 PNC *q̄q̄wVičV 'kind of grass, nettle [vid travy, krapiva]'
PST *kʷāt (~ qʷ-) 'fern [paprotnik]'
PY *kita 'nettle, hemp [krapiva, konoplja]'
- 4.4 PEC *q̄q̄wəwV 'seed, pit [zerno, kostočka]'
PST *kuan 'nut, peach, fig [orex, persik, figa]'
PY *(x)im 'nut [orex]'
- 4.5 PEC *həw̄hV 'onions [luk]'
PST *kəw̄h (~ q-) 'onions [luk]'
PY *həʔ9a (< *həʔhə) 'sarana [a liliaceous plant] [sarana]'
- 4.6 PNC *nəq̄q̄wu 'chaff, straw [mjakina, soloma]'
PST *nāik (// *m-) 'grass, reed [trava, trostnik]'
PY *dVq-Vn 'grass [trava]'
- 4.7 PNC *q̄V(I)ḷV 'grass, stem [trava, stebel]'
PST *grā 'reed [trostnik]'
Kot. kerī 'grass [trava]'
- 4.8 PNC *bən99i 'stick, pole [palka, žerd]'
PST *ph̄vk 'stick, log [palka, brevno]'
PY *bāk- 'log, block, chock [brevno, krjaž, čurka]'
- 4.9 PEC *KōrV 'stick, piece of a log [palka, kusok brevna]'
Tib. m-khar 'pole, stick [žerd', palka]'
Jug kɔʔl (< *koʔr) 'stump [pen]'

- 4.10 PEC *HăiV 'branch [vetka]'
 PST *jēl 'branch [vetka]'
 PY *ʔul-an 'twig [prutik]'

For the roots 'bark [kora]', 'leaf [list]', 'grass [trava]' see the Swadesh list above.

5. TERMS FOR NATURAL PHENOMENA AND OBJECTS

- 5.1 PNC šwīšV 'wind [veter]'
 PST *lij id.
 PY *ʔul- 'whirlwind [vixr]'
- 5.2 PEC *kwēIru 'pit, hole [jama, dyra]'
 PST *ghuar id.
 PY *g/a/r 'vulva, cunnus'
- 5.3 PEC *tVIV (~ -r-) 'dirt/filth, dung of small animals [grjaz', pomet melkix životnyx]'
 PST *dhəi 'dirt/filth, dust [grjaz', pyl]'
 PY *dəʔər- id.
- 5.4 PEC *qāqā 'dirt/filth, pus, mould [grjaz', gnoj, plesen]'
 PST *q(h)āk (//-ŋ) 'dirt/filth, dung [grjaz', navoz]'
 Ket. qəʔq 'debris drifting on a river at flood-time [musor, nanesennyj rekoj v polovod'e]'
- 5.5 PNC *kāyu 'gate [vorota]'
 PST *k(h)wə 'hole, opening [dyra, otverstie]'
 PY *gu (~ k-) 'opening (of a bag) [otverstie (meška)]'
- 5.6 PNC *čowqqIV 'drizzle, hoarfrost [izmoros', inej]'
 PST *žāŋ 'rain [dožd]'
 Kot. sāk 'frozen snow-crust, icy crust [nast, ledjanaja korka]'
- 5.7 PEC *čçVrV 'to freeze; ice [zamerzat'; led]'
 PST *sēr 'hail; rain with snow [grad; dožd' so snegom]'
 PY *tVʔVr- 'to freeze, to get cold [merznut', stynut']'
- 5.8 PNC *ggwīmḥV//*m(h)iggwV 'cloud, mist/fog [oblako, tuman]'
 PST *mūk 'mist/fog [tuman]'
 Kot. ḥoan 'mist/fog [tuman]'

- 5.9 PEC *q̥wĩnɪccV 'spring/source [istočnik]'
 PST *ceŋH 'well, reservoir [kolodec, vodoem]'
 PY *sin- 'polynia [unfrozen patch of water in the midst of an icebound river], spring/source [polyn'ja; istočnik]'

- 5.10 PEC *h̥əmgV 'hole, window [dyra, okno]'
 PST *khāH 'opening (also mouth, door) [otverstie (tž. rot, dver')]'
 (but cf. also *ʔak 'hole [dyra]')
 Ket. ag-di 'mouth cavity [polost' rta]'

- 5.11 PWC *č̣ə//*ʒ̣ə 'salt [sol]''
 PKC [Proto-Kuki-Chin] *m-či 'salt [sol]''
 PY *čəʔ 'salt [sol]''

Cf. also the roots 'ashes [zola]', 'rain [dožd]', 'sand [pesok]', 'smoke [dym]', 'star [zvezda]', 'moon [luna]', 'sun [solnce]', 'water [voda]' in the Swadesh list above.

6. TERMS RELATED TO AGRICULTURE AND PROCESSES OF PRODUCTION

- 6.1 PEC *h̥wiIm̥V (/--n̥V) 'rope [verevka]'
 PST *ñəH 'tendon/sinew [žila]'
 PY *(h)āŋ- 'rope [verevka]'
- 6.2 PEC *rVʃ(w)V 'rope [verevka]'
 PST *rō(w) 'rope [verevka]'
 Ket. tiʔ 'towing-line [bečeva]'
- 6.3 PEC *ʔIwɪlhV 'wheel [koleso]'
 PST *q̥wəl 'turn/spin, rotate/revolve [kurtit'(sja), vraščat'(sja)]'
 (cf. also *q̥wəl 'round [kruglyj]')
 Ket. iŋ-təp 'wheel [koleso]'
- 6.4 PNC *kirtwV 'enclosure, fence [zagon, ograda]'
 PST *Kat id.
 (?) Jug kutuk 'kennel [konura]'
- 6.5 PNC *q̥wəlhə 'board; lid [doska; kryška]'
 PST *Khrum 'roofing, coverlet [pokrytie, pokryvalo]' (if -m is a suffix, cf. the Proto-Yeniseian form)
 PY *gul-am (~ *k-) 'lid [kryška]'

- 6.6 PEC *ʒwiɪV 'fence, enclosed place [zabor, ogorožennoe mesto]'
 PST *rāl 'fence [zabor]' (with regular dissimilation r- < *l- before final *-l)
 Ket. kɔʃij '(enclosed) bin [labaz (zakrytyj)]' (see Xelimskij 1982, p. 242, on Samoyed and Tunguso-Manchurian parallels of this word).
-
- 6.7 PEC *qwaqwaV 'basket, vessel [korzina, sosud]'
 PST *Kuk//*Kuak id.
 PY *qək- (~ *h-) 'spoon, scoop [ložka, čerpak]'
-
- 6.8 PNC *šwəlHV 'arrow [strela]'
 PST *la id.
 PY *ʔəl 'fish-spear [ostroga]'
-
- 6.9 PNC *ççirqa 'carpet, blanket [kover, odejalo]'
 OC *črək 'mat [cinovka]'
 PY *sɪʔ(9) 'bedding of [rein]deer skin [podstilka iz olen'ej škury]'
-
- 6.10 PEC *HömV 'awl [šilo]'
 PST *qVm//p 'needle [igla]' (with unclear vacillation of final consonants)
 PY *(h)ɪʔn 'needle [igla]'
-
- 6.11 PEC *tākwaV 'kind of vessel (mortar, pot) [vid sosuda (stupka, goršoc)]'
 PST *tekW 'vessel, to draw/to ladle [sosud, čerpat']' (with irregular development, likely due to an early assimilation)
 Ket. tō//tōyə 'vessel [stupa]'
-
- 6.12 PEC *čwVkkwV 'knife [nož]'
 PST */ʒh/ākW 'chisel [doloto]'
 PY *čok 'axe [topor]'
-
- 6.13 PNC *ččäqwaV 'spoon, basin, scoop [ložka, miska, čerpak]'
 PST *čekW (//š-) 'to draw/to ladle [čerpat]'
 PY *sɪʔh (~ -k, -g) 'trough for dough [koryto dlja testa]'
-
- 6.14 PEC *ç(ç)apV 'metal decoration; a bend, slingshot [(metalličeskoe) ukrašenje; izvilina, rogatka]'
 PST *cuap (~ *č-) 'ring [kol'co]'
 PY *tap 'circle, hoop [krug, obruč]'
-
- 6.15 PNC *q̄q̄waṗa 'vessel (earthenware or wooden); boat [sosud (glinjanyj ili derevjannyj); lodka]'
 OC *khāp 'wooden vessel [derevjannyj sosud]'
 PY *qāʔp (~ -b) 'boat (of birch bark) [lodka (berestjanaja)]'
-

- 6.16 PNC *čorV 'copper [med']'
 PST *sŋr 'metal, gold [metall, zoloto]'
 PY *čur- 'copper, ore [med', ruda]'
-
- 6.17 PEC *bīlgwV 'hammer [molot]'
 (?) PST *phōk (~ -ūk) 'to strike [bit]'
 PY *puʔuī (< *pulk-?) 'hammer [molot]' (the correspondence is not fully dependable because of phonetic inexactness; possibly, we have here a term subject to early diffusion).
-
- 6.18 PEC *čəwīi 'arrow, point [strela, ostrije]'
 PST *šal (~ -i) 'pointed, point [ostrij, ostrije]'
 PY *saʔr₁ 'point [ostrije]'
-
- 6.19 PEC *gVmtV 'chair, pillow [stul; poduška]'
 PST *g(h)ūm id.
 PY *bot- (~ q-) 'bed [postel]'
-
- 6.20 PEC *q̄qwaIr̄V-iv 'belt, strap; case/cover [pojas, remen'; čexol]'
 PST *kʷāt (~ g-) 'tie together [svjazyvat]'
 PY *guʔda 'little strap [pojasok]'
-
- 6.21 PEC *rēHēččəwV (< *-k̄k̄wV ?) 'belt, strap [pojas, remen]'
 PST *rāk 'bind, tie together [vjazat', svjazyvat]'
 PY *tāhV (~ -9-) 'belt, to gird [pojas, opojasyvat]'
-
- 6.22 PNC *čVʔ 'bow, arrow [luk, strela]'
 PST *šāj 'to shoot [streljat]'
 PY *cu- 'bowstring [tetiva]'
-
- 6.23 PEC *ʔōččōnV 'hem; flap [podol]'
 PST *lVŋ (~ č-) 'skirt [jubka]'
 PY *ʔalVŋ 'breeches [brjuki]'
-
- 6.24 PNC *šānq̄qi 'India ink, ink [tuš', černila]'
 PST *smāk (// -ŋ) 'ink, India ink [černila, tuš']'
 PY *suK 'paint [kraska]'
-

7. OTHER SUBSTANTIVES

- 7.1 PNC *ʔIwərʔV 'troops [vojsko]
PST *raH 'troop; enemy [vojsko; vrag]
PY *har- 'slave, servant (also, term for the Arin people [rab, sluga (tž. nazvanie arincev)])
-
- 7.2 PEC *ʒʒeiv 'war [vojna]
PST *rāi 'war [vojna]' (for the development of the initial cf. No. 6.6)
PY *kārje 'war [vojna]
-
- 7.3 PEC *q̄q̄Vq̄q̄V 'street; settlement [ulica; poselenie]
PST *kēŋ 'road, path [doroga, tropa]
PY *h̄iḥ 'road [doroga]
-
- 7.4 PEC */q̄q̄/wātV 'street [ulica]
PST *ghwāt (~ kh-) 'courtyard; passageway [dvor; proxod]
PY *qoʔt (~ ḥ-) 'way, road [put', doroga]
-
- 7.5 PEC *kwiccV 'look, appearance [vid, oblik]
PST *Kwīt 'apparition, ghost [prizrak, privedenie]
PY *guʔus 'idol [idol]
-
- 7.6 PNC *'nīwcV//*cīnwV 'prince; god [knjaz'; bog]
PST *C(h)on 'god; magician [bog; koldun]
PY *sen-Vŋ 'shaman [šaman]
-
- 7.7 PNC *šiʔwV 'breath/spirit, thought [dux, duma]
PST *suā 'to breathe, to live [dyšat', žit']
PY *duʔ(ḥ) 'smoke [dym]
-
- 7.8 PEC *hVɪ/ʕ/V 'breath/spirit, steam [dux, par]
PST *la 'breath/spirit [dux]
PY *ʔir- 'breath/spirit, breath [dux, dyxanie]
-
- 7.9 PEC *qwějV 'oath, vengeance [kljatva; mest']
PST *9(h)ōwH 'to curse, to insult [rugat', oskorbljat']
PY *həj- 'anger, to be angry [gnev, serdit'sja]
-
- 7.10 PWC *q̄I'a 'to speak, word [govorit', slovo]
PST *k(h)a 'word [slovo]
PY *qā9 'word [slovo]
-
- 7.11 PEC *q̄waiʔV 'anger, offence, gossip [gnev, obida; spletnja]
PST *q(h)āl 'argument, to argue [spor, -it']
Jug ḥar-in 'evil [zloj]
-

- 7.12 PNC *-eċċ/1/ (with varying class markers) 'half, middle [polovina, seredina]'
 PST *ċaj 'middle [seredina]'
 PY *ʔal, *d-al 'half [polovina]'
-
- 7.13 PNC *ś(w)āno 'year [god]'
 PST *snġ 'year [god]', 'old [staryj]' (-ġ is likely a suffix)
 PY *sin- 'old [staryj]', *si-9a (< *sin-9a) 'year [god]'
-
- 7.14 PNC *ccowilHV (// *cciwoilHV) 'autumn [osen]'
 OC *čhiw 'autumn [osen]'
 PY *sir₁- (< *sVwir₁-) 'summer [leto]'
-
- 7.15 PNC *hVnV 'now [sejčas, teper]'
 PST *nia 'time; when (auxiliary word) [vremja; kogda (služ. slovo)]'
 PY *ʔen- 'now [sejčas]'
-

Cf. also the roots 'night [noč]', 'road [doroga]' in the Swadesh list above.

8. NUMERALS

-
- 8.1 PNC *śimHV 'three [tri]'
 PST *sūm id.
 PY *doʔŋa id.
-
- 8.2 PNC *ʔārānċċ(w)ḥ 'six [šest]'
 PST *rūk id.
 PY *ʔaḥV id.
-
- 8.3 PNC *ḡ-enċi 'ten [desjat]'
 PST *CVj id. (the initial correspondence is irregular, including among the Sino-Tibetan languages themselves)
 PY *tuʔ-ŋ id.
-
- 8.4 PNC *-ōirōiśw 'hundred [sto]'
 PST *p-rja id. (with regular loss of the final consonant)
 PY *jus id.
-

For the numbers 'one [odin]' and 'two [dva]' see the Swadesh list above.

9. PRONOUNS AND PARTICLES

-
- 9.1 PEC *šv 'demonstrative pronoun (this, that) [ukaz. mestoimenie (ětot, tot)]'
 PST *še, *šīŋ 'this, that [ětot, tot]'
 Ket. śīŋ 'here [zdes]', śūŋ 'there [tam]'
-
- 9.2 PEC *CwēmV 'how much [skol'ko]'
 PST *c(h)um 'as much, so much [naskol'ko, nastol'ko že]'
 PY *sum 'if [esli]'
-
- 9.3 PNC *nV 'interrogative pronoun [voprositel'noe mestoimenie]'
 PST *nāi(ŋ) 'id. (how, where, why, etc.) [id. (kak, gde, počemu i t. p.)]'
 PY *ʔan- 'who [kto]'
-
- 9.4 PEC *gV 'that (near the speaker) [tot (niže govorjaščego)]
 PST *kǎ (~ g-) 'this, that [ětot, tot]'
 PY *ka 'that [tot]'
-

Cf. also the roots 'all [ves']', 'I [ja]', 'this [ětot]', 'that [tot]', 'thou [ty]', 'what [čto]' in the Swadesh list above.

10. VERBS

-
- 10.1 PNC *ʔačV 'to butt, to strike [bodat', bit']'
 PST *t/ə/jH id.
 PY *tV- 'to strike [bit']'
-
- 10.2 PNC *ʔaʒʒV 'to be ill/to hurt [bolet']'
 PST *ʒhā(j) id.
 PY *ʔaʒ-//ʒa- id.
-
- 10.3 PNC *ʔVlcwVn- 'to measure [merit']'
 PST *chūn(H) 'to measure, measure (n.) [merit', mera]'
 PY *siʔVn 'to weigh [vzvešivat']'
-
- 10.4 PEC *HēwḥVn- 'to warm [nagrevat'(sja)]'
 PST *kǎŋ 'to fry/roast/broil [žarit']'
 PY *ʔəqan 'to boil/cook [varit']'
-
- 10.5 PWC *pa 'to weave, to braid [tkat', plesti]'
 PST *phāH 'to sew, to mend [šit', zašivat']'
 PY *pVʔV 'to wind [vit']'
-

-
- 10.6 PEC *ʔVlq̣IV (< *ʔV-lVq̣IV) 'to rot [gnit']'
 PST *lɪŋ 'pus [gnoj]'
 PY *-VqV (~ -g-) 'to rot [gnit']'
-
- 10.7 PEC *ʔV/m/q̣q̣lWV 'to dig [kopat]'
 PST *gəw id.
 PY *ʔuk- (~ -g-) id.
-
- 10.8 PEC *ʔilcVn- 'to twist, to twirl [krutit', vertet']'
 PST */ʒh/eŋ 'to wind [vit]'
 PY *tiʔŋ 'to twist, to twirl [krutit', vertet']'
-
- 10.9 PEC *ʔšhwV 'to do [delat]'
 PST *qʷǎj (~ 9ʷ-) id.
 PY *wV- id.
-
- 10.10 PNC *pu/hw/V 'to blow [dut]'
 PST *bhū(H) 'to blow, to breathe [dut', dýšat]'
 PY *-pV 'to blow [dut]'
-
- 10.11 PNC *ʔVmčVr- 'to fry/roast/broil [žarit]'
 PST *čiar 'to fry/roast/broil, to boil/cook [žarit', varit]'
 PY *žā- 'to fry/roast/broil [žarit']'
-
- 10.12 PNC *čVnɸV-n- 'to seek, to ask for/invite [iskat', prosit]'
 PST *čiaŋ 'to ask for/invite, to call [prosit', svat]'
 Ket śaŋ- 'to seek [iskat']'
-
- 10.13 PNC *ʔ/ā/čVn- 'to go, to lead [idti, vesti]'
 PST *čāŋ 'to carry, to lead [nesti, vesti]'
 (?) PY *čāŋ 'to pull [taščit']'
-
- 10.14 PNC *ʔimcV 'to speak, to tell [govorit', rasskazyvat]'
 PST *Cu id.
 Ket asan-əj 'to speak [govorit']' (cf. also PY *-VsV 'to shout, to call [kričat', zvat']')
-
- 10.15 PNC *ʔərq̣q̣Vw- 'to close [zakryvat]'
 PST *gō id.
 PY *-VKV 'to cover [kryt', pokryvat]'
-
- 10.16 PNC *jātV(r-) 'to let go, to leave [puskat'; ostavljat]'
 PST *dhā 'to put [klast]'
 Ket. (Krejnovič 1968, p. 19) di 'to put [klast]'
-

- 10.17 PNC *ʔaččwV 'to take; to carry [brat'; nesti']
 PST */č/ow(H) 'to take [brat']'
 PY *čɔŋ// -n 'to catch, to seize [lovit', pojmat']' (-ŋ// -n is apparently a frequentative aspect suffix).
-
- 10.18 PNC *ʔk̥wV 'to seek [iskat']'
 OC *gu 'to seek [iskat']'
 PY *(b-)âk- 'to find [najti']'
-
- 10.19 PNC *ʔəçwV 'to sing, to shout [pet', kričat']'
 PST *lō 'to sing [pet']'
 PY *ʔVʔr 'to sing, song [pet', pesnja']'
-
- 10.20 PNC *ʔVl̥k̥wV -n- 'to sew, to spin [šit', prjast']'
 PST *khāj 'to wind, to spin [vit', prjast']'
 PY *kiʔ 'yarn, to spin [prjaža, prjast']'
-
- 10.21 PNC *h̥lōr̥q̥wV 'to give birth [roždat']'
 PST *kij (~ -ej) id.
 PY *-iKV// *-aKV 'to give birth, to be born [roždat'(sja)]'
-
- 10.22 PNC *ʔäqIV 'to rub [teret']'
 PST *kü 'to grease [mazat']'
 PY *ʔoq- 'to rub, to grease [teret', mazat']'
-

Cf. also the roots 'to bite [kusat']', 'to drink [pit']', 'to eat [est']', 'to fly [letat']', 'to give [davāt']', 'to hear [sylsat']', 'to know [znat']', 'to say [skazat']', 'to sit [sidet']', 'to sleep [spat']', 'to stand [stojat']', 'to swim [plavat']', 'to walk [idti]' in the Swadesh list above.

11. ADJECTIVES

-
- 11.1 PNC *HäšV 'damp [vlažnyj']
 PST *jūl (~ -l̥) 'wet [mokryj']
 Ket. a:ī 'sticky, covered with silt [vjazkij, ilistyj]'
-
- 11.2 PNC *Hā/r/šwV -n- 'flat, straight [rovnyj, prjamoj']
 PST *jšl id.
 PY *ʔuʔuī 'smooth [gladkij]'
-
- 11.3 PEC */ʷ/VččwV 'wet; green [mokryj; zelenyj']
 PST *čow 'wet, moisture/liquid [mokryj, vlaga]'
 PY *wVs- 'blue [goluboj]'
-

- 11.4 PNC *ʔiḱwVr- 'to bend, crooked [gnut', krivoj]'
 PST *kuar 'crooked [krivoj]'
 PY *kər- (~ -l-) 'crooked, bent [krivoj, izognutyj]'
-
- 11.5 PNC *q̇(ḡ)elʔV (with reduplication *q̇(ḡ)eḡ(ḡ)elʔ 'bitter [gor'kij]'
 PST *ghāH id.
 PY *qVqVr 'bitter, bile/gall [gorkij, želč']'
-
- 11.6 PEC *ʔōnqV 'old [staryj]'
 PST *qāH (~ 9-, k-) 'old [staryj]'
 PY *ʔəq-aj 'before, earlier, in antiquity [prežde, ran'se, v starinu]'
-
- 11.7 PEC *hoʒʒV-n- 'to clear (of weather) [projasnjat'sja (o pogode)]'
 PST *čōj (~ ʒ-) id.
 Jug :hʔ (adverbial form ejd'f<~>) 'clear (of weather) [jasnyj (o pogode)]'
-
- 11.8 PEC *ʔəlqWV 'alien [čužoj]'
 PST *q(h)Waj id.
 Ket. qɔ:j 'neighboring [sosednij]'
-
- 11.9 PEC *ʔatV//*ʔatV 'naked [golyj]'
 PST *thiā-n 'naked [golyj]' (the comparison is possible, if -n is a suffixal element)
 PY *tɔ-//*tɔt- 'naked [golyj]'
-
- 11.10 PNC *ʔoʒonu//*ʔonoʒu 'bottom [dno, niz]'
 PST *nāikW 'to sink, submerge [tonut', pogružat'sja]'
 PY *kan- (//kam-) 'low, bottom [nizkij, niz]'
-
- 11.11 PNC *ʔōtV//*ʔōtV 'straight, right [prjamoj, pravij]'
 PST */t/āi-ŋ (with suffixal -ŋ) 'straight [prjamoj]'
 PY *tat-(Vŋ) 'straight; right [prjamoj; pravij]'
-
- 11.12 PEC *qolrHV 'empty [pustoj]'
 PST *hāŋ id. (-ŋ regularly < *-rH)
 PY *hūj id. (with not fully clear substitution of j for r).
-
- 11.13 PEC *(HV)kwēnV 'light (adj.), light (n.) [svetlyj, svet]'
 OC *kWāŋ id.
 PY *gəʔn- id.
-

- 11.14 PEC *čaqǫV 'strength, power [sila, mošč']
 PST *chǎk 'hard, difficult [tverdyj, trudnyj]
 PY *sak-ar (~ -g-, -9-) 'hard, tight [tverdyj, tugojj]
-
- 11.15 PNC *šerccV 'to fry/roast/broil, to burn; hot [žarit', palit'; gorjačijj]
 PST *ca 'hot [gorjačijj]' (cf. also *cu 'to fry/roast/broil [žarit']')
 PY *xu?us- 'warm [teplyj]
-
- 11.16 PNC *(hV)čəqV 'big [bol'sojj]
 PST *čök enough [dostatočnyj]
 (?) PY *suK- 'fat [toltsyj]' (possibly, the irregular reflex of **š [correspondence [25]] is conditioned by its earlier medial position.)
-
- 11.17 PNC *33Vnǫ// *šVn33u 'clear/clean [čistyj]
 PST *chian 'clear/clean [čistyj]
 Jug tul-en 'clear [čistyj]' (< *tur- with regular development -r- < *-nH-).
-
- 11.18 PNC šarǫV/*šarǫV (also with reduplication *šarǫV) 'wide/broad [širokijj]
 PST *qʷāŋH id. (-ŋ < *-rH)
 PY (with reduplication) *h19-V1 id.
-

Cf. also the roots 'big [bol'sojj]', 'dry [suxojj]', 'full [polnyj]', 'good [xorošijj]', 'green [zelenyj]', 'new [novyj]', 'red [krasnyj]', 'small [malen'kijj]', 'white [belyj]', 'yellow [želtyj]' in the Swadesh list above.

It appears that the correspondences cited above are sufficient to demonstrate a genetic relationship among the three families under consideration, although beyond the limits of this publication there still remain a great many pairs of lexical comparisons, and also morphological arguments. This and other material we expect to publish in the very near future.

On the basis of glottochronological data (the materials for lexicostatistical analysis are cited above), the divergence of the three subgroups of the 'Sino-Caucasian' family may be dated very approximately at about the 8th or 9th millennium B. C. (It should be kept in mind that the breakup of Proto-North-Caucasian and that of Proto-Sino-Tibetan are dated accordingly at the 4th to 6th millennium B. C., and the breakup of Proto-Yeniseian to a later period, probably the first millennium B. C.) The question of the original 'Sino-Caucasian' homeland still remains open, as does the question of the paths of migration of the 'Sino-Caucasians'. It is necessary also to take note of the possible connection of the 'Sino-Caucasian' languages with the Na-Dene languages (a hypothesis of S. L. Nikolaev).

List of Abbreviations:

PA -- Proto-Andian
 PY -- Proto-Yeniseian
 PKC -- Proto-Kuki-Chin
 PLB -- Proto-Lolo-Burmese
 PNC -- Proto-North-Caucasian
 PC -- Proto-Cezian
 PEC -- Proto-East-Caucasian
 PWC -- Proto-West-Caucasian
 PL -- Proto-Lezgian
 PN -- Proto-Nakh
 PST -- Proto-Sino-Tibetan
 OC -- Old Chinese
 Kot. -- Kott
 Tib. -- Tibetan (Classical)

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SINO-CAUCASIAN LANGUAGES IN AMERICA¹

Preliminary Report

Sergei Nikolaev

Introduction

In the present paper, evidence is put forward demonstrating the relationship between the North Caucasian and Na-Dene languages. This implies that the Na-Dene family is genetically related to the Sino-Caucasian macro-family which also includes the Sino-Tibetan and Yenisei languages. In fact, the present work should be considered a follow-up to the pioneering article by S.A. Starostin in which the existence of the Sino-Caucasian macro-family was first substantiated (Starostin: 1984).

It has been proven that the Sino-Caucasian macro-family is not confined to Eurasian languages alone, but extends far to the east, since the Na-Dene family, which belongs to Sino-Caucasian, is distributed throughout a large part of North America. Its boundaries will extend even further eastward if it can be proven that the Algonquian-Ritwan languages belong to Sino-Caucasian.

The Na-Dene language family is comprised of the following:

1. Haida

2. Tlingit-Athapascan

A. Tlingit

B. Eyak-Athapascan

a. Eyak

b. Athapascan (Navaho, Sarsi, Hupa and others)

¹ The author wishes to express his deepest gratitude to S.A. Starostin for his valuable remarks made during discussions of the present work.

The dissolution of the Na-Dene proto-language (PNaD) occurred approximately 7,000-7,500 years ago. The original homeland of this family, judging from the evidence, must be central or eastern Alaska (cf. Krauss:1979).

In the present paper I make use in most cases of an Eyak-Athapascan reconstruction (PEA), because only for languages of this group did I have sufficient materials (Krauss' Eyak dictionary and H. Hoiijer's Navaho dictionary, as well as information on other Athapascan languages from morphological and phonetic descriptions, basic word lists, comparative-historical articles and other sources). The PEA reconstruction cited below is my own. It differs in certain important details from E. Sapir's reconstruction used by American linguists (see Krauss:1979).

As regards Tlingit and Haida, sufficiently comprehensive dictionaries of these languages have unfortunately been unavailable to me. However, in all cases of which I am aware, I have generally taken Tlingit data from texts in Tongean dialects. Tlingit forms can for the most part be derived from PEA (it is however possible that Tlingit differentiates old uvulars and velars which have merged in PEA).

Certain doubts have been expressed regarding the inclusion of Haida in the Na-Dene family, but they should be considered unsubstantiated. Certain complex and non-trivial phonetic correspondences between Haida and other Na-Dene languages give rise to some difficulties. Because of the extremely fragmentary nature of the Haida data, I was unable to determine whether using this material adds anything to the reconstruction of PNaD. Under the heading PNaD I cite those protoforms where at least Tlingit data are present.

Below are the regular correspondences between consonants in the North Caucasian and Eyak-Athapascan proto-languages. I do not give the Sino-Caucasian interpretation of these correspondences, since they are given by Starostin. The PNC-PEA correspondences match poorly with his proposed PSinC system which, it seems to me, does not in all cases

reflect the true state of affairs. A binary comparison similar to that proposed in the present work does not generally allow for a reliable reconstruction (such reconstructions are unfortunately quite common in American linguistics).

Reflexes after the old sonants (sounds which have partially disappeared in PEA) are given in square brackets. Single slanted lines separate those correspondence pairs whose origin can be explained. The PNC system is considered to be the more archaic because of the large number of phonemes. Vocalic correspondences are not given because their reconstruction has been inadequately worked out in PEA (in my PEA reconstructions, pre-Athapascan vowels are given from which the Eyak vowels are derived).²

² The transcription has the following features. Lateral stops and affricates: L, Ł, L'; lateral spirants: ł, Ł; the "back" lateral sonant: ɭ. Consonantal labiality is designated by the diacritic w to the right of the phoneme, abruptness by the sign '. Vocalic nasality is indicated by the sign n to the right of the letter. The medio-lingual sonant is represented by the letter y. The voiced uvular stop is rendered by the letter G, the voiced spirant with the letter R, and the voiceless spirant as X. The symbol I denotes pharyngealization of the preceding sound. Superscript numerals indicate possible variants of the correspondingly ordered sound in the preceding example. For instance, *xɣ̣d (~ɣ̣², ɣ̣³) means the ɣ̣ may vary with ɣ̣², and d may vary with ɣ̣³. These remarks should be taken into account when comparing the material given above with that in Starostin's papers.

Phonetic Correspondences between Proto-North-Caucasian and Proto-Eyak-Athapscan

PNC	PEA	PNC	PEA
b, p, p̄	w-	c ^w	č-
p', w	w	c' ^w	[č̃ ^w]
m	w-, m//θ	ʒʒ ^w	č' ^w -/ʒ ^w -
d	d	c c ^w	č-
t, t̄	t-, d	c' c' ^w	c'-/ʒ ^w -
t'	t' [d]	z (w)	ʒ ^w -
n	l-//w-, n//m//θ	s ^w	ʒ ^w -
c	c-, ʒ	č	ʒ-
c̄	s	č̄	-ʒ
c'	c'	č'	č-(//ʒ)
ʒʒ	c'-/s	č' č'	c'-[ʒ]
c' c'	c'	č	č-
s, s̄	s	č̄	s
č' ^w	L'-(//č'-)	x	g-
č č ^w	-ʒ	x̄	x-
č' č' ^w	t-	G (w)	g (w)-
č ^w	s	q	k-/x-
č̄	ʒ-	q̄ (w)	x (w)-
č'	č' [ʒ]	q' (w)	k' (w)
č̄ č̄	-č'	G G (w)	g (w)/x
č' č'	č'/ʒ-	qq	k-/x
ž	ʒ-	q' q'	x
ʒ, ʒ̄	ʒ	q' q' (w)	k' (w)
č̄ č̄ (w)	-č'	R	g-

Phonetic Correspondences between Proto-North-Caucasian and Proto-Eyak-Athapscan

PNC	PEA	PNC	PEA
š ^w	š	χ(ʷ), ̄χ(ʷ)	x
L	-L	ʔ	ʔ- [h]
L'	L'	ʔ	k'-, x/ʔ [H]
LL	L-, ʔ/L'	ʕ	y-/x-
L'L'	ʔ/L'	h̄	x-, x/ʔ
l̄	l-	h	ʔ-//h- [h]
ʔ	ʔ-	ʔ ^w	w-, x [h]
ʔ ^w	ʔ-	ʔ ^w	-x ^w [h]
LL ^w	-ʔ	ʕ ^w	w-/x ^w
ʔʔ ^w	ʔ-	h̄ ^w	-x
L'L' ^w	ʔ	l	l-//š-, l//θ
ʔ ^w	ʔ-	l̄	ʔ
g	g	r	d-, y//θ/n
k	k-/x-	u	w-
ḡ(ʷ)	g(ʷ)	y	y-//ʔ-, y
k'(ʷ)	k'(ʷ) [g]		
k'k'(ʷ)	k'(ʷ)-		

The comparative material is given below. For the sake of convenience, the comparative lexicon is divided into semantic groups as in Starostin. PNC reconstructions are given according to my and Starostin's "Comparative-Historical Dictionary of North Caucasian languages" (MS; see also Nikolaev & Starostin:1984).

1. Human and animal body parts³

- 1.1. E. Gəḡ 'thigh' /<PEA *gʌ(M)g/ PEC *GʌRʌ(<ḡ¹) 'id.'
- 1.2. E. Gəḡnʒ 'mustache, beard' /<*gʌnʒ/ ~ PNC *k̄a(n)ḡʌ 'id.'
- 1.3. E. c'äḡX 'eyebrow' /<PEA *c'ʌnx/ ~ PNC *c'ḡHēmʌ (~c'o¹) 'eyebrow, eyelash'
- 1.4. PNAd *lāḡx / *xāḡl 'eye' ~ PNC *ḡwʼlhi 'id.'
- 1.5. Nav. -γḡd /<PEA *xḡd (~ḡ², t³)/ ~ PEC *XʌTʌ (~ d³, q¹) 'breastbone (sternum), brisket'
- 1.6. PEA *dāḡ 'lip, beak, bill' ~ PEC *ḡāḡʌʌ (~d¹, h³) 'gum/cheek' (apparently, primarily 'front part of the mouth')
- 1.7. PNAd *kʷʌh(M)d 'lip' ~ PEC *k'wēm t'ḡ (~ō⁵) 'id.'
- 1.8. PEA *cāḡm 'stomach, belly, uterus (womb)' ~ PNC *c c wāḡym i 'bile, gall'.
Regarding the validity of the comparison see "Commentary".
- 1.9. PEA *č'ḡʌk'w 'gut intestines' ~ PEC *č'č'āq'q'wʌ 'id.'
- 1.10. PNAd *xēḡ 'fat, grease, suet, lard' ~ PEC *Xwʌl l(H)i (~ e⁴, ḡ³) 'fat, suet, lard'
- 1.11. PEA *Ləx 'fat, grease' ~ PEC *L L wʌm(H)ʌ (~ō²) 'suet'
- 1.12. PEA *k'ūm? 'roe, milt, kidney (anat.)' ~ PEC *k'k'əmpʌ 'kidney (anat.)'
- 1.13. PNAd *kāḡhLʌ 'skin (hide), bark' ~ PEC *q̄q̄āLʌ (~ḡ³) 'id.'
- 1.14. PEA *gúḡ(n)d 'knee' ~ PEC *q'wəln tʌ (~q'q'w¹) 'knee, elbow'
- 1.15. PNAd *ʔʌnh 'bark' ~ PEC *ḡeI/n/?wʌ 'hide' (thick)
- 1.16. PEA *xāḡ(?)k' 'large skeletal bones' ~ PEC *kū/1/k'ʌ 'bone, leg bone'
- 1.17. PEA *c'ém(?) 'bone, leg, foot' ~ PNC *yēc'c'wēmʌ 'id.'
- 1.18. PEA *dēḡ 'blood' ~ PNC *r'āL'L'ḡ 'flesh'

³ In the PEA form, sonants *_m and *_l may be either present or absent, and in such instances are denoted by the symbol (M). The symbol N = *_n/*_m/*_l.

- 1.19. PNaD *t'əx (h³) 'foot' ~ PEC *t'wəh¹ω¹ 'id.'
- 1.20. PNaD *kω¹h¹č' 'thumb' ~ PNC *k'(ω)¹h¹č¹ (~ k¹k'(ω)¹, n¹č¹) 'finger/toe'
- 1.21. Sarsi -γùs 'leg' / < PNaD *xũš (~ s³); cf Tlingit x'ûs / ~ PEC *kω¹h¹č¹ (~ l³, č⁴) 'leg, foot, paw'
- 1.22. PNaD *k'ω¹h¹(M)š 'leg, foot' ~ PEC *q'q'ω¹l¹š¹ 'leg, foot, heel'
- 1.23. PEA *č'fNš 'nose' ~ PEC *š¹umš¹ (~ š¹,⁴) 'face, muzzle, snout' (??)
- 1.24. E. guč' 'penis' / < PEA *gω¹h¹(M)c' / ~ PEC *k'ə¹l¹č' (~ č¹,⁴) 'genitalia'
- 1.25. PNaD *t'ā(η)h 'feather' ~ PNC *t'ī¹ī¹m¹h 'feather, wing'
- 1.26. PEA *k'ēhž 'armpit' ~ PEC *q'q'w¹č'ω¹ (~ č'č'w³) 'elbow, armpit'
- 1.27. PEA *c'ī¹ (~ e²) 'umbilical cord, placenta' ~ PEC *žžōh¹n¹ 'navel'
- 1.28. PEA *c'ēk' 'navel' ~ PNakh *c'onk'¹ (~ g³) 'id.'
- 1.29. PEA *tə¹ 'hand' ~ PNC *Hu¹o¹L¹'L'ē / *Ho¹L¹'L'olē 'hand, arm, shoulder'
- 1.30. E. ʔuG 'heart' / < PEA *ʔ¹h¹(M)g / ~ PNC *yēr¹k'wē 'id.'
- 1.31. E. tux 'saliva, phlegm' / < PNaD *t¹h¹x¹ (~ l¹x¹, m¹x¹) / ~ PNakh *tūg / *tūk' 'saliva' (derived from the PEC verb *tūy¹ 'to spit')
- 1.32. E. dē¹ 'spine, backbone, spinal column' / < PEA *d¹h¹(M)ʔ / ~ PNC *rēh¹L¹'L'ω¹ 'bone'
- 1.33. E. Ge¹ʔt' 'body' / < PEA *g¹h¹(M)t' / ~ PEC *Gwā¹t'ī¹ 'stem; trunk (body), torso'
- 1.34. PNaD *žē¹h¹x¹(ω) 'ear' ~ PNC *l¹ēh¹l¹h¹ 'id.'
- 1.35. PEA *q'ēMgš 'cartilage' ~ PNC *q'amq'aš¹ (~ q'q'¹,⁴) 'id.'
- 1.36. E. q'a¹ə¹c' 'jaw' / < PEA *k'h¹(M)c' / ~ PEC *q'ə¹c'ō¹ (~ q'q'¹, ə², c'c'³) 'mouth'
- 1.37. PEA *k'wūš 'neck, back of the head, throat' ~ PEC *k'w¹h¹š¹ (~ š³, k'¹) 'throat, back of the head'

- 1.38. E. ʔl a h G 'intestines' /< PEA *ʔl a h (M) g/ ~ PEC *l a g a 'stomach, belly, entrails, intestines'
- 1.39. E. q u h 'lung' /< PEA *k a (M) h/ ~ PEC *q u a l θ a 'id.'
- 1.40. E. q' a k' 'fish bone' /< PEA *k' a (M) k' w/ ~ PNC *q' w a m q' q a (~ q' q' (w) 1, 4) 'bone'
- 1.41. PEA *g w e ʔ k' (~ ǣ 2) 'throat' ~ PEC *G G a m G G w a 'id.'
- 1.42. E. g i h z 'to show teeth (an animal), teeth' ~ PEC *g a m ó' a 'fang, canine tooth'
- 1.43. E. x e ʔ x 'diarrhea; defecate, urinate' /< PEA *x a ʔ (M) x/ ~ PEC *G G ʔ l G G i 'excrement, dung'
- 1.44. PEA *o ʔ k' 'hair (on the head)' ~ PWC *s q I a 'head'
- 1.45. PEA *g a n 'arm' ~ PNC *G G w i I n a / *n i I G G w a 'id.'

II. Terms denoting kinship and social organization

- 2.1. PEA *w u ʒ 'older brother', *d e h ʒ 'younger sister' ~ PNC *w - i ó ó w a 'brother', *r - i ó ó w a 'sister' (root with alternating prefixed class markers)
- 2.2. PEA *ʔ w ʔ ʒ (~ ǣ 3) 'uncle/nephew' ~ PEC *m a ó a the name of a distant relative or relative by marriage ('fiance', 'distant cousin', etc.)
- 2.3. PEA *ʒ' w í y 'woman' ~ PNC *z z w a y a 'id.'
- 2.4. PEA *z a ʔ l 'woman' ~ PEC *z a h w a l a (~ 1 5) 'female'
- 2.5. PEA *t a ʔ 'father; father-in-law' ~ PEC *ʔ a ʔ a (y a) 'father'
- 2.6. PNaD *w a ʔ 'father' ~ PNC *ʔ o b a (y a) 'id.'
- 2.7. PEA *(y) a h ʒ 'nephew (sister's son)' ~ PNC *- a r ʒ a 'son, daughter' (with alternating class markers, including *y-)
- 2.8. PEA *l a h z (~ ǣ 2) 'relative by marriage (father-in-law, son-in-law, brother-in-law)' ~ PEC *n i w o (w) a 'son-in-law, brother-in-law, husband'
- 2.9. PEA *ʒ a N ó 'father-in-law' ~ PEC *s w i ó ó a 'father-in-law; first cousin (male)'

- 2.10. PNaD *t̥ɪnh 'woman, wife' ~ PEC *t̥ɪnhɬ (~ t̥ɪ) 'id.'
 2.11. PEA *k'əy 'brother-in-law' ~ PEC *q'arɬ 'first cousin; uncle'
 2.12. PEA *ʔɪhɬg 'enemy, foreigner' ~ PNC *ɪk̄ɬɬ (~ ɪ) 'slave; man, person'

III. Fauna

- 3.1. PNaD *k'əɬɬɬg 'butterfly' PEC *k'aɬɬk'ɬ 'id.'
 3.2. Sarsi mɪt 'moth' /< PEA *wɪt̥ (~ ɛ2) / ~ PEC *pəɬɬɬ 'butterfly'
 3.3. PEA *cɬɬɬɬ 'squirrel' ~ PNC *c'ɬ/ɬ/ɬcɬ (~ c'c'ɪ, c̄5) 'weasel, marten, rat'
 3.4. PNaD *gɬʒ 'dog, wolf' ~ PNC *k̄wəc̄c̄ 'id.'
 3.5. Kiowa-Apache ʒəɬ 'crow' /< PEA *xəɬt̥ / ~ PNC *q̄wəɪɬɬ (~ Gwɪ) 'jackdaw, rook'
 3.6. E. čid 'nit' /< PEA *čɬ(M)d / ~ PEC *č'ɬmt'ɬ 'flea, (bed-)bug'
 3.7. PNaD *gəx 'hare, rabbit' ~ PEC *GGwɔʔrɬ 'hare'
 3.8. Hare -dəd-ɪ 'a type of fly' /< PEA *dɪt̥ (~ ɛ2, d3) / ~ PEC t'əmt'ɔ 'fly'
 3.9. PEA *wəɪʔ (~ x3) 'fly' ~ PEC *pəɪɬ (~ r3) 'fly, bee'
 3.10. PEA *LɪnH (~ l,m3) 'mouse, squirrel' ~ PNC *LLəɬ(H)ɬ 'hare'
 3.11. PNaD *wəɬh (~ x3) 'sheep/goat' ~ PEC *w/o/hɬ 'sheep, lamb'
 3.12. Slave goɪ-oɬ 'elk' /< PEA *gɪt̥ / ~ PEC *Rwəɪɬɬ (~ Gwɪ) 'deer'
 3.13. Nav. b̄ɪɬh 'deer' /< PEA *wɪNɬx / ~ PEC *wɪɪɬɬɬ (~ r3) 'mountain goat'
 3.14. PEA *k'wɬm(?) 'large predator (wolf, sea lion)' ~ PEC *ʔəɬʔɬ (~ ʔ4) 'wolf'
 3.15. PNaD *ʒɪk' 'robin redbreast' ~ PEC *čəq'wɬ 'a type of sparrow'
 3.16. PEA *s̄s̄s̄ 'a small bird' ~ PEC *s̄ɬr̄s̄ɬ (~ ɪ3) 'id.'
 3.17. PEA *xək' 'crow' ~ PNC *q'q'wəɪɬɬ (~ i2) 'crow, jackdaw'
 3.18. PEA *k'ɬ(M)k' 'waterfowl (duck, loon)' ~ PEC *q̄q'ɪr(ɪ)q̄q'wɬ 'crane'

- 3.19. E. l i g l i g 'small wild goose' /< PEA *l₁g^w-l₁g^w/ ~ PEC *l₁eg-l₁eg^h (~ l₁^{1,4}) 'stork, heron'
- 3.20. PEA *w^hšix 'nightjar (goatsucker)/(sea-)gull' ~ PNC *b₁š₁š₁ 'large predatory bird'
- 3.21. PNaD *š^huk 'fish' ~ Plezg *š^hek 'id.'
- 3.22. E. Xəwə 'dog' /< PEA *x₁aw/ ~ PEC *X^hwəHye 'id.'
- 3.23. PEA *š^hš^h (~ š^h¹, š^h³) 'worm' ~ PNC *š^harš^h 'snake, lizard'
- 3.24. E. ciL 'otter' /< PEA *c₁Λ(M)L'/ ~ PNC *c₁arLLw^h 'weasel'
- 3.25. TL. s^hik 'black bear' /< PEA *c^hΛ(1)x(ω) (~ g^(w)⁴) / ~ PEC *c^hil₁q^h 'lynx, leopard'
- 3.26. PEA *c^hΛx 'a type of (small?) bird' ~ PEC *c^ho^huhmΛ 'a type of bird'
- 3.27. E. ʔn^hq^h 'seagull' /< PEA *ʔ₁Λ(M)k'/ ~ PEC *l₁ē₁q^hw^h (~ l₁¹, q^hw^h³) 'large predatory law'
- 3.28. E. gaʔq^h 'heron, crane' /< PEA *g^hΛʔ(M)k'/ ~ PEC *q^hq^hwēnq^hq^h 'id.'
- 3.29. E. wēX 'crow' /< PEA *w₁Λ(M)x/ ~ PEC *p^hwōIqq^h 'crow'

IV. Flora

- 4.1. PEA *ʔ^hš^h 'branch' ~ PEC *H₁al₁ 'id.'
- 4.2. PEA *dēs 'driftwood' ~ PNC *r/š^h/š^hw^hΛ 'tree, firewood'
- 4.3. E. ʔid 'deadwood, firewood' /< PEA *ʔ₁Λ(M)d/ ~ PEC *ʔ^hwim^h (ē, š^h²) 'firewood'
- 4.4. PEA *x^hʔš^h 'thorny plant' ~ PEC *R₁al₁o^hc^h(w)^h 'thorny shrubs'
- 4.5. PNaD *gād 'stump, root' ~ PNC *g^hur^hdΛ 'log, stump, block'
- 4.6. E. s^hī^hs 'moss, lichen' /< PEA *s₁Λns/ ~ PEC *š^hā^hmš^hΛ 'moss; mold'
- 4.7. PEA *g^hš^h (~ š^h²) 'stick' ~ PEC *q^hwērš^hΛ (~ G^hw^h¹) 'stick, twig, stalk'
- 4.8. PEA *š^hš^h 'plant, bush, tree' ~ PEC *š^hš^hIw^hū 'log, beam, girder, tree'
- 4.9. Nav. tēš^h 'reed' /< PEA *tēš^h/ ~ PEC *t^hwā^hl₁š^h 'stick, post (a type of tree)'

- 4.10. E. tug 'rice' /< PEA *t_h(M)g^w/ ~ PEC *t_hk'w_h/ *t'k'w_h 'millet (> rice)'
- 4.11. PNaD *L'ù?x^w 'grass' ~ PEC *ʔwəL'ə 'grass, hay'
- 4.12. E. q'əGš 'a type of berry' /< PEA *k'ə(M)gš/ ~ PEC *k'ik'š / *šik'ə (~ š³/1) 'sweetbrier (eglantine)'
- 4.13. PEA *xəšy 'edible root' ~ PEC *q'q'əʔə (~ q'1) 'plant with edible root
(turnip, beet, etc.)
- 4.14. E. wəšč' 'wooden spit for roasting fish' /< PEA *wə(M)šč/ ~ PNC
*m/u/rč'wə 'sharp stick'

V. Natural phenomena and objects

- 5.1. E. q'əc' 'bog, swamp' /< PEA *q'ə(M)c'/ ~ PNC *qəməc'ə 'bog, swamp,
mire, dirt, filth'
- 5.2. E. seʔʔ 'twilight, evening' /< PEA *səʔʔ/ ~ PNC *səw_il_ə (~ e², r³)
'evening, night'
- 5.3. E. -duk- 'hump, hump-backed' /< PEA *də(M)k'w/ ~ PNC *rəq'q'(w)ə
'mountain, hill'
- 5.4. E. q'əməʔ 'fog' /< PEA *k'əmə/ ~ PNC *k'k'wəmə 'cloud, fog'
- 5.5. PEA *sūlH (~ m, n³) 'star' ~ PEC *šəlHə (~ l³) 'sunlight, ray, beam'
- 5.6. PEA *š'īd 'earth, dirt' ~ PEC *š'wəl_h (d(w)³) 'id.'
- 5.7. PEA *ləhk' 'earth, soil, ground' ~ PEC *nəq'wə (~ q'q'w³) 'id.'
- 5.8. PEA *š'wīmh 'day' ~ PEC *yīGG(w)īnə 'id.'
- 5.9. PEA *šū(?)x '(hoar-)frost' ~ PNC *s(w)īHl_ə (~ l⁴) 'hoarfrost, cold (adj.),
to freeze'
- 5.10. PEA *tū (~ *tūw) 'hail, hoarfrost, ice' ~ PEC *yīt'wə (~ t', š, ə², t⁴)
'snow'
- 5.11. PNaD *wəl(h) 'ocean, lake, pond' ~ PEC *wəl'ə 'river/sea'
- 5.12. PEA *xīʔL' 'night, darkness' ~ PEC *xəImL'ə 'fog, cloud; sleep'

- 5.13. PNAd *k'ùhs 'cloud, sky' ~ PEC *ʔǎmɛʌ 'sky, cloud; deity'
 5.14. PEA *sáy 'sand' ~ PND *súre 'sand; soot'
 5.15. PNAd *xǎnʔ 'water, river' ~ PEC *xǎnʔi 'id.'
 5.16. PEA *ʔĩ1h (~ m, nʒ) 'river, brook' ~ PNC *Hʌʔwʌrĩ/*Hʌrʌʔwĩ 'sea'
 5.17. E. ʃĩ 'brook, stream' /< PEA *ʃʌy/ ~ PEC *ʃorʌ (~ ɛʔ) 'river, stream, lake'
 5.18. PEA *śàhs (~ c'ʔ) 'snow' ~ PEC *šʌršʌ (~ šʔ, ʔ) 'hoarfrost'
 5.19. PEA *śwǎ(H) 'sun/moon' ~ PNC *ʒʒwǎhǎrĩ (~ ēʔ) 'star'
 5.20. PNAd *t'ǎʔc' 'coal' (> 'black') ~ PEC *t'irǎšwǎ (~ ǎšwʔ) 'coal'
 5.21. E. xulʔL' 'winter, snow' /< PEA *xwʌʔ(M)L'/ ~ PEC *hʔiL'L'i(nʌ) (~ hʔ, L'L'wʒ) 'winter'
 5.22. E. qih 'prairie; forest clearing' /< PEA *kʌ(M)h/ ~ PNC *qʷĩrHʌ 'field'

VI. Terms relating to agriculture and manufacturing

- 6.1. E. Xehʔ 'rope' /< PEA *xʌhʔ/ ~ PEC *xǎʔʌ (~ ǎʔ, ʔ) 'thread, rope'
 6.2. PEA *L'ũʔʔ 'rope' ~ PEC *Hʌɛ'wʌʔʌ 'leather, rope'
 6.3. E. ʔ1ahʔ 'comb' /< PEA *ʔ1ʌhʔ/ ~ PEC *yĩrĩLLwǎ 'id.'
 6.4. PEA *kǎ1 (~ n, mʒ) 'house' ~ PEC *qʌ1ʌ 'house, nest'
 6.5. PEA *ʔǎhs 'weir for catching fish' ~ PEC *ʔwǎʔʌ (~ ǎʔ)
 6.6. E. k'us 'scoop' /< PEA *k'ʌ(M)ʃ/ ~ PEC *q'wǎšwʌ 'scoop, shovel'
 6.7. PNAd *xʌh(M)d 'basket' ~ PEC *kũʔwʌ 'id.'
 6.8. PNAd *c'ǎg(w) 'basket, bowl, dish' ~ PNC *ɛ'ɛ'ǎq'wʌ 'spoon, scoop'
 6.9. PEA *t'ĩMk'w 'bow, arrow' ~ PEC *t'ǎIm(ǎ)ʌ 'arc, bow'
 6.10. E. Geʔt' 'skirt' /< PEA *gʌʔ(M)t'/ ~ PEC *k'wǎʔrʔwʌ 'shirt, clothing'
 6.11. Nav. c'ĩ1 'ruins' /< PEA *c'ĩʔ/ ~ PEC *c'wǎʔʌ (~ ʔ) 'id.'
 6.12. Nav. -šĩrʌh 'salt' /< PEA *šĩrʌh (~ šwʔ)/ ~ PNC *c'c'wǎʔʌ 'id.'
 6.13. E. q'ac' 'pair of tongs' /< PEA *q'ʌ(M)c'/ ~ PEC *qǎʔ(I)mʌc'ʌ 'id.'

- 6.14. E. Xaʔʔ 'handle; mollusc shell' /< PEA *xʌʔʔ/ ~ PEC *lʷəɪlʌ 'L' 'ʷʌ
'handle'
6.15. E. gaʔo' 'ladder' /< PEA *gʷʌʔ(M)c'/ ~ PEC *k̄ōnʒʒʌ (~ ēō, ēʰ) 'ladder;
door frame'
6.16. PNAd *wēgʷʒ 'flint' (>'metal') ~ PNC *nōwqʌó'ʌ 'flint'

VII. Other nouns

- 7.1. PEA *č'fɪd 'evil' spirit, the deceased' ~ PEC *č'é'wɪɪɪɪ(ʷ)ʌ 'tombstone'
(> 'tower')
7.2. TL. ʔat 'thing' /< PEA *ʔʌ(N)d/ ~ PNC *Hʌɾʌ (~ d3) 'thing'
7.3. PEA *wānh 'military detachment, group of warriors' ~ PEC *ʔwʒɪʔrʌ (~ ʔ3)
'army'
7.4. PEA *xeʔs 'pus' ~ PEC *h̄/ǎ/mʒʒʌ 'saliva, pus, snot'
7.5. E. c'aʔq' 'diarrhea' /< PEA *c'ʌʔnʌ' / ~ PNC *č'ɪq'ʷʌ (~ c'ɪ) 'feces,
excrement, dung'
7.6. Hare -gi é r-eʔ 'road' /< PEA *ged/ ~ PEC *GGwāɪt'ʌ 'street'
7.7. Nav. k'ɪz 'chink, crack, split' /< PEA *k'(ʷ)ɪc' (~ ǎʔ, sʔ)] ~ PEC *q'ʌč'ʌ
(q'q'ɪ, č'č'ɪ3) 'hole'
7.8. Nav. -yēl 'sacrifice, offering (to the spirits)' /< PEA *xəʔ/ ~ PEC *q̄wāɪʔo
(~ əʔ5) 'fate; verdict, gossip'
7.9. PEA *ʒ(ʷ)ɪh 'name' ~ PEC *ʒʒwēɾʔɪ 'id.'
7.10. E. sɪʈhX 'tree gum' /< PEA *sʌhɪx/ ~ PNC *śūnq'q'ɪ 'tree gum; ink'
7.11. PEA *wəɪh (~ ʔʔ2, n, m3) 'round, to twirl, twist' ~ PEC *ʔwɪɪhʌ (~ h4)
'wheel'
7.12. PEA *sūʈs 'thorn, sting' ~ PNC *čēā(n)čē 'thorn, thorny plant'
7.13. PNAd *wāʔʔ 'edge' ~ PEC *p̄āʔāɪǎ 'id.'
7.14. E. GəhG 'ring, circle' ~ PNC *gür-gʌ 'circle'

- 7.15. E. Xəš 'mark' /< PEA *x^h(M)š/ ~ PEC *ʕwš¹ēi (~ e⁵) 'id.'
- 7.16. PEA *c'ūw 'female breast, nipple' > 'milk' ~ PNC *c'c'ahar^p'^h '(sharp) tip'
- 7.17. PEA *L'āh 'bottom, ground, buttocks' ~ PNC *HšL'šnū / *L'šnHš 'bottom, ground'
- 7.18. E. *yax 'down, downwards' /< PEA *y^h(M)x/ ~ PNC *-šxw^h 'bottom' (with prefixes indicating classes including *y-)
- 7.19. E. ʔāg 'half' /< PEA *ʔ^h(M)ǵ/ ~ PNC *hāmc'w^h 'middle, half'
- 7.20. PEA *gāl- 'manner of walking' ~ PEC *ya¹h^h (~ ē², h⁴) 'step'
- 7.21. Nav. -k'āi 'fork (in a road)' /< PEA *k'(w)š^h (~ L', L³) / ~ PNC *k'w/a/1L'L'^h (~ LL⁴) 'pitchfork, fork (in a road)'
- 7.22. PEA *wēš 'sleep' ~ PNC *nēhšwL'L'u 'id.'
- 7.23. PEA *dāš 'edge' ~ PEC *-iʕw^h 'edge, end' (with alternating prefixed class markers including *r-)
- 7.24. E. xah^h 'hothouse, bathhouse' /< PEA *xw^hah^h/ ~ PEC *h/a/_h^h 'breath, steam'
- 7.25. E. xah^h 'bathhouse' (< PEA *xw^hah^h/) ~ PEC *h[a]_h^h 'breath, steam'

VIII. Numerals

- 8.1. PEA *ki 'two' (in compounds *laʔd-ki, cf. E. laʔd 'two') ~ PNC *(t)q'wš¹ 'id.'
- 8.2. PNaD *dīNk' 'four' ~ PEC *-šmq'^h 'id.' (with alternating class markers including *r-)
- 8.3. PNaD *ga 'ten/twenty' (E. Gā 'ten', Tl. -qa 'twenty') ~ PNC *GGa 'twenty' (?)

IX. Pronouns and particles

- 9.1. PNaD *da locative particle/affix ~ PNC *-ṭ^h locative affix (lative?)

- 9.2. PEA *l_h-x 'you (pl.)/we' ~ PNC *l̥/ä/ 'we (inclusive)'
- 9.3. E. k'u 'not, no' /< PEA *é'ʌ (~ c'w¹) / ~ PNC *é'ʌ (~ č'ʌ) negative particle/affix
- 9.4. PEA *d_h 'not, no' ~ PNC *ɛ_h (~ d) negative particle
- 9.5. PNaD *h_h demonstrative/personal pronoun (3rd/4th p. sg.) ~ PNC *h_h stem of demonstrative pronouns and adverbs
- 9.6. PEA *d_h 'this, these' ~ PEC *d_h 'that, those'
- 9.7. PNaD *ʔ_h stem of demonstrative pronouns and adverbs ~ PEC *ʔ_h 'id.'
- 9.8. PNaD *w_h stem of demonstrative and personal pronouns (3rd p.) ~ PNC *u_h 'this, that'
- 9.9. PNaD *wĩ 'thou' ~ PNC *u_o 'thou'
- 9.10. PNaD *ʒwĩ 'I' ~ PNC *z(ʷ)o 'I'

X. Verbs

- 10.1. PNaD *ʔyǎ(H) 'to be, to become' ~ PNC *ʔəʔ_h 'to be'
- 10.2. PNaD *ʔyǎ(H) 'to make, do' ~ PNC *ʔəhʷ_h 'to make, do'
- 10.3. PEA *-k(ʷ)ĩm(h) (~ 1³) 'food, foodstuffs' ~ PEC *ʔikwʌn_h 'to eat'
- 10.4. Tl. -ʔət 'to go, walk' (pl.) /< PNaD *ʔ_h(M)d / ~ PNC *ʔəɛt_h 'to go, to move'
- 10.5. Tl. -ʔus' 'to wash' /< PNaD *ʔ_h(N)c' / ~ PNC *ʔəɪɜɜ_h (~ n³) 'id.'
- 10.6. PNaD *LǎNH 'to drink' ~ PEC *HʌLL(ʷ)ʌ(n_h) 'id.'
- 10.7. E. sūt' 'to suck' /< PEA *s_h(M)t' / ~ PEC *s̥wint'ʌ 'to sniff (smell); to smoke'
- 10.8. E. q'əc' 'to bite' /< PEA *k'ʌ(M)c' / ~ PEC *q'əcĩ (~ q'q'¹, c'c'⁴) 'bite, piece'
- 10.9. PNaD *t_h(H) 'to put' ~ PNC *ʔet_h(r_h) 'to leave; to be'
- 10.10. PNaD *gʷ_h(H) 'to know' ~ PNC *ʔəmc'(ʷ)ʌ 'to know, to see' (?)

10.11. PNaD *k'ǎm (~ 1³) 'to burn; fire' ~ PEC *k'w/ī/mΛ / *ʔ/ī/mk'wΛ 'to burn'

10.12. PEA *xéwΛʔs 'to itch, to scratch oneself' ~ PEC *ʔhJΛčΛWΛ (~ ʒ³) 'id.'

10.13. E. L'aʔ 'to beat, to cut' /< PEA *L'Λ(M)ʔ / ~ PEC *HÜL'L'ΛwΛ 'to beat, to butt'

10.14. E. cə 'to buy' /< PEA *cΛ(M) / ~ PEC *ʔ/ə/cΛ(nΛ) 'to take, to buy'

XI. Adjectives and adverbs

11.1. TL ǎʔǎʔkʷ 'long ago' /< PNaD *ǎʔǎʔkʷ / ~ PNakh *čǎq 'far'

11.2. PEA *čùhk' 'big' ~ PNC *(hΛ)č'əqʷΛ 'id.'

11.3. PNaD *cùxʷ 'yellow, green' ~ PEC *ʔččJǎkkʷΛ 'id.'

11.4. PEA *šΛʔgʷ 'crooked' ~ PEC *š'ΛkkʷΛ (~ š'č'1) 'id.'

11.5. PEA *L'ǎhχ 'left' ~ PNC *č' (w)ǎ (H)mΛ 'id.'

11.6. PNaD *yǎhš 'small' ~ PEC *ʔΛIǎšΛ (~ š⁴) 'small, few'

11.7. PNaD *kǎ(M)č' 'small; young animal, child' ~ PNC *kʷǎč'Λ (~ č'4) 'young animal'

11.8. PEA *čǎʔx 'wet; to swim' ~ PEC *čwəH(Λ)mΛ 'wet'

11.9. PEA *kʷúmʔ 'fire, light' ~ PEC *kʷǎnΛ 'light (noun, adj.)'

11.10. PNaD *šǎnh 'old (person, animal)' ~ PEC *šǎnΛ 'year'

11.11a. PEA *gʷǎN(H) 'dry, to dry' ~ PNC *ʔiGGwΛrΛ 'id.'

11.11b. TL. -xuk 'to dry' /< PNaD *g (w)Λ(N)gʷ / ~ PEC *GGiGGwΛ(rΛ) 'dry, to dry'

11.12. PEA *k'ǎhǎš (~ m⁴) 'sour' ~ PEC *q' (w)Λǎč'Λ 'id.'

11.13. E. Xə 'hot', Xə 'to melt, thaw; warm (adj.)' /< PEA *xΛ(H), *xΛn(H) / ~ PNC *ʔēIwXΛ(nΛ) (~ ə²) 'to be warm, hot'

11.14. E. š'ǎxʷ 'muddy' /< PEA *š'Λ(M)xʷ / ~ PEC *(š')š'əIɾqʷΛ 'dirty, dirt, filth'

11.15. E. gǝ 'bad' [< PEA *gʷʌ(H)] ~ PEC */h̄/oḱʷʌ 'bad'

11.16. E. qēc 'child, small animal' [< PEA *kʌ(M)c'] ~ PNC *kənɔ'c'ʌ 'small;
puppy, child'

11.17. PEA *šǔmh 'good' PEC *hʷi nžʌ (~ h̄l) 'id.'

Commentary

A somewhat modified version of Swadesh's basic word list is given below for PEA and PEC cognates.

	PEC	PEA
1. big	* (hΛ) ǝ'əqʷΛ	* ǝhkh'
2. eye	* ʔwĩlh i	* lǎʔx / * xǎʔl
3. to burn	* k'w / ī / mΛ	* k'ǎm
4. two	* (t) q'wǎI.	* ki
5. gut (intestine)	* ǝ'ǝ'ǎq'q'wΛ	* ǝ'íyΛk'w
6. woman	* ʒʒʷǎyΛ	* ʒ'wíy
7. this/that	* dΛ	* dΛ
8. yellow	* / ǝǝ / ǎkkwΛ	* ǝhwx
9. earth	* nǎq'wΛ (~ q'q'w³) * lǎhk'	
10. name	* ʒʒʷǎrʔi	* ʒ(ʷ)ih
11. bark (of a tree)	* q̄q̄Λ	* kǎhL
12. bone	* yǎǝ'ǝ'wǎm̄	* ǝ'emʔ
13. four	* -ǎmq'Λ	* dǎmk'
14. rope	* HΛǝ'wǝlΛ	* L'úʔʔ
15. small	* ʔΛlǎǎΛ	* yǎhǎ
16. we	* l / ǎ /	* lΛ-
17. not	* dΛ (~ ʔΛ)	* dΛ
18. foot	* t'wǎhʷΛ	* t'ǎx (~ h³)
19. cloud	* ʔǎmǎΛ	* k'ǎhs
20. sand	* sǎre	* say
21. feather	* t'íʔí mΛ	* t'an(h)
22. to drink	* HΛLL(ʷ)υ(nΛ)	* LǎNH

	PEC	PEA
23. arm	*GGʷiInʌ	*gǎn
24. fish	PLezg *č'ek'	*ʔǔk'
25. knee	*q'wəInʌ (~ q'q'wʌ)	*qúʔ(n)d
26. dry	*ʔiGGʷʌrʌ	*gʷǎN(H)
27. ear	*lǝhʌ	*ʒǝhʌ(w)
28. father	*ʔaʔa(yʌ), *ʔobʌ(yʌ)	*tǎʔ, *wǎʔ
29. good	*hʷinʒʌ (~ hʷ)	*ʒǔmh
30. I	*z(w)ʷ	*ʒwʔ
31. grass	*ʔwēL'ʌ	*L'ǔʔxʷ
32. fat	*tʌwʷi(H)mʌ	*tǎx

In accordance with my glotto-chronological calculations, the time-depth of the Eyak-Athapascan family is approximately 2,500 - 2,700 years while the time-depth of PNC is around 6,000 years (according to Starostin). With corrections, this does not appear to be an obstacle for glottochronological calculations in determining the time when Sino-Caucasian started to deteriorate. But a great uncertainty in choosing one of the two proto-languages' synonyms for comparison keeps me from making these calculations. For example, in PNC, for every gloss in the word list, there are, in almost all cases, two lexemes, and it is not possible, in most instances, to decide which word is primary and which is not. The decision will usually be subjective (and therefore the age of the family will be either greatly overestimated or, on the contrary, underestimated).

What follows is a list of cognates from Sino-Caucasian languages and Algonquian and Salishan languages (which, as it seems, also belong to Sino-Caucasian). Numbers correspond to those in the preceding lists.

- 1.3. Cf. PST *chəm 'head hair, eyebrow, eyelash', PY *cəŋe 'hair' (Starostin 1984, p.24), PSa *cəm (~ŋ³) 'eyebrow', maybe also N. chy/xiv-r 'eyebrow'
- 1.4. Cf. PY *de- 'eye' (Starostin 1984, p.23), PSa qəl-əŋ?, Yurok -l-in 'id.'
- 1.8. Cf. PST *sĩn, PY *səŋ 'liver' (Starostin 1984, p.24). PNC meaning 'gall' is secondary. Cf. Twana ščəl ɬəb 'liver', čəl ɬəb 'lungs', etc. (< PSa *čəl ɬəŋ). Cf. also Altaic *s[ə]l(ə)mə, Uralic *šúšəmə 'heart' (a borrowing from a Sino-Caucasian substratum?).
- 1.30. Cf. PST *ʔrak/ŋ, PY *təga 'chest' (Starostin 1984, p.23), N. ŋi-rv-i-r 'id.'
- 1.32. Cf. PST *rak/ŋ 'bone', PAlg. *wə-θk- 'id.', Yurok (?) wəʔk-əʔ 'id.'
- 1.44. Cf. PY *ciGə 'head' (Starostin 1984, p.23), PAlg. *-štikw-, maybe also N. (Amur) čəŋ-r, (East Sakhalin) čəŋv-r 'head'
- 1.45. Cf. Old Chinese kēn 'shoulder', PY *ken- id. (Starostin 1984, p. 28), PAlg. *-neθk- 'hand' (the PAlg. form fits PEC root variant *niIGGwə).
- 2.1. Cf. PST *čəyH 'elder brother/sister', PY *b-is(ə) 'brother, sister' (Starostin 1984, p. 28), PAlg. *-iʔθ- 'elder brother', PSa *qec- 'id.' Note possessive marker *b- in PY.
- 2.6. Cf. PST *pa(H), PY *ʔəb 'father' (Starostin 1984, p. 29), PSa *χip 'grandfather', *pip 'father'.
- 2.11. Cf. PST *Kwriy 'nephew, son-in-law', PY *χ/qər 'grandchild' (Starostin 1984, p. 28).
- 3.5. Cf. PST *kri, PY *k/gor-UT- 'crawl' (Starostin 1984, p. 29)

- 3.13. Cf. PST *ryuk 'deer', PY *ʔiʔχ 'male reindeer' (Starostin 1984, p.29),
PALg. *mah/ʔkw- 'deer'
- 3.15. Cf. Old Chinese 𪛗 'sparrow' (Starostin 1984, p. 29)
- 3.20. Cf. N. phisk 'kite', PALg. *pĩškw- 'goatsucker', PSa *pig'w 'id.' - Cf.
also Oroch pičaki 'id.'
- 3.21. Cf. PY *c[ĩ]k 'fish, snake' (Starostin 1984, p. 205), PSa *c'əq'w 'fish', N.
čho 'id.'
- 3.22. Cf. PST *qhwi'y 'dog' (Starostin 1984, p. 23), PSa *xweŋ'w 'fox'
- 3.24. Cf. PST *[s]raiŋ 'squirrel', PY *saʔqa 'id.' (Starostin 1984, p.29), PALg.
šānkw- 'mink', šinkw- 'weasel', N. čhoŋsq 'polecat'
- 3.27. Cf. PST *lak/ŋ 'eagle, hawk', PY *dʌʔGʌ 'eagle' (Starostin 1984, p. 29);
maybe also PALg. *kiliw- 'eagle' (with a metathesis?)
- 4.1. Cf. PST *yāl 'branch', PY *ʔul-ən 'small twig, switch' (Starostin 1984, p.
30-31), PSa *xwəl'k 'branch'
- 5.4. Cf. PST *mūk 'fog' (this corresponds to the PEC root variant *mōk'k'wʌ), PY:
Kotic Xoəŋ 'fog' (Starostin 1984, p. 30-31), (??) PSa *pum/ŋ 'smoke, to
smoke'
- 5.14. Cf. PST *sray 'sand' (Starostin 1984, p. 24)
- 5.15. Cf. PY *xur₁ 'water' (Starostin 1984, p. 25) - [Hardly to PEC *xǎnʔt. -V.S.]
- 6.8. Cf. PST *č/šek'w 'to laddle', PY *siʔx (~k, gʰ) 'a dough trough' (Starostin
1984, p. 32)
- 7.3. Cf. PST *raH 'army; enemy', PY *har- 'slave, servant' (Starostin 1984, p.
32), PSa *xwər/1 'white man' (originally 'enemy, alien?')
- 7.6. Cf. PNC *ghwǎt (~khʰ) 'yard, passage', PY *q/xoʔt 'path, road' (Starostin
1984, p. 32)

- 7.10. Cf. PST *smāk/ṣ 'ink', PY *suk 'paint' (Starostin 1984, p. 32), PSa *čəməx 'resin, gum', PAlg. *šihkω- 'resin'
- 7.11. Cf. PST *qωl, *qωāṭ 'round', PY > Ket i í-təp 'wheel' (Starostin 1984, p. 31), PAlg. *kwat- 'rotate' (trans.) [As for PNC *l versus PAlg. *t, cf. also PNC *coōy(U)wilHU 'winter/fall': PAlg. *kēywēt- (~*kyēwēt-) 'north, northern wind']. - Cf. also N. kulku-s 'wheel'.
- 7.17. Cf. PST *nāikω 'drown, sink, submerge', PY *kan/n- 'bottom, low', PAlg. *nēyhθ- 'down, below' (see Starostin 1984, p. 35, about PST and PY cognates)
- 7.25. Cf. PST *la 'spirit', PY *ʔir 'spirit, breath' (Starostin 1984, p. 33), PSa *hel 'soul; dream; to live', PAlg. *lēhlē- 'breath' (redupl.)
- 8.1. Cf. PST *k-niy(s), PY *xi-na 'two' (Starostin 1984, p. 25), PSa *tq'wU 'two' (cf. PNC *tq'wU 'two' where *t- is unclear from the point of view of the PNC level [*t- is a prefix, according to Starostin. - V.S.]), PAlg.: Cree na-po 'two' (*nU- is a numeral prefix in PAlg.), with -p- < PAlg. *kω.
- 9.4. Cf. PST *ʔat-/ʔa- 'not' (Starostin 1984, p. 24), N. tha 'not' (prohibitive particle)
- 9.7. Cf. PST *ʔi 'this', *ʔa 'that' (Starostin 1984, p. 25), N. a- 'that'
- 9.9. Cf. PY *ʔu/*ʔaw 'thou' (Starostin 1982, p. 204), PSa *wU 'thou',
- 9.10 Cf. PSa *cə, 'o'.
- 10.2. Cf. PST *qωay, *Gωay 'make, do' (Starostin 1984, p. 34), PSa *həʔw 'id.'
- 10.10. Cf. PST *siə, PY *ʔUt- 'know' (Starostin 1984, p. 24), PAlg. *kiθk- 'know', PSa *ʔac'-əx 'see'
- 11.2. Cf. PST *čok 'sufficient' (Starostin 1984, p. 36). -Alt. *čōk(U) 'much, many' and Ural. *čōkkU 'thick, big' might represent borrowing from Sino-Caucasian language.

- 11.9. CF. Old Chinese *k_wǎŋ, PY *gəʔn- 'light (noun), bright' (Starostin 1984, p.35), PAlg. *k_wʉn- 'day', PSa *q_wiŋ 'bright, shiny', N. khunu- 'be bright, transparent', khunu 'dawn'
- 11.10. Cf. PST *s_niŋ 'year; old', PY *s_in- 'old' (Starostin 1984, p. 33), N. aŋ 'year'.
- 11.11. PNC root in 11.11b [PEC ɡ̊i ɡ̊ɡ̊wʉʉ(rʉ) 'dry, to dry'] represents a reduced variant of 11.11a (PNC *ʔi ɡ̊ɡ̊wʉʉ 'id.'). Na-Dene data confirm this identification. There is a reflex of a reduplicated root in PAlg. *kǎhk- 'dry'; of simple forms in PST *q/kǎr, PY *qar₁ /l 'id.' (Starostin 1984, p. 23), N. (East Sakhalin) qhau 'become dry'.

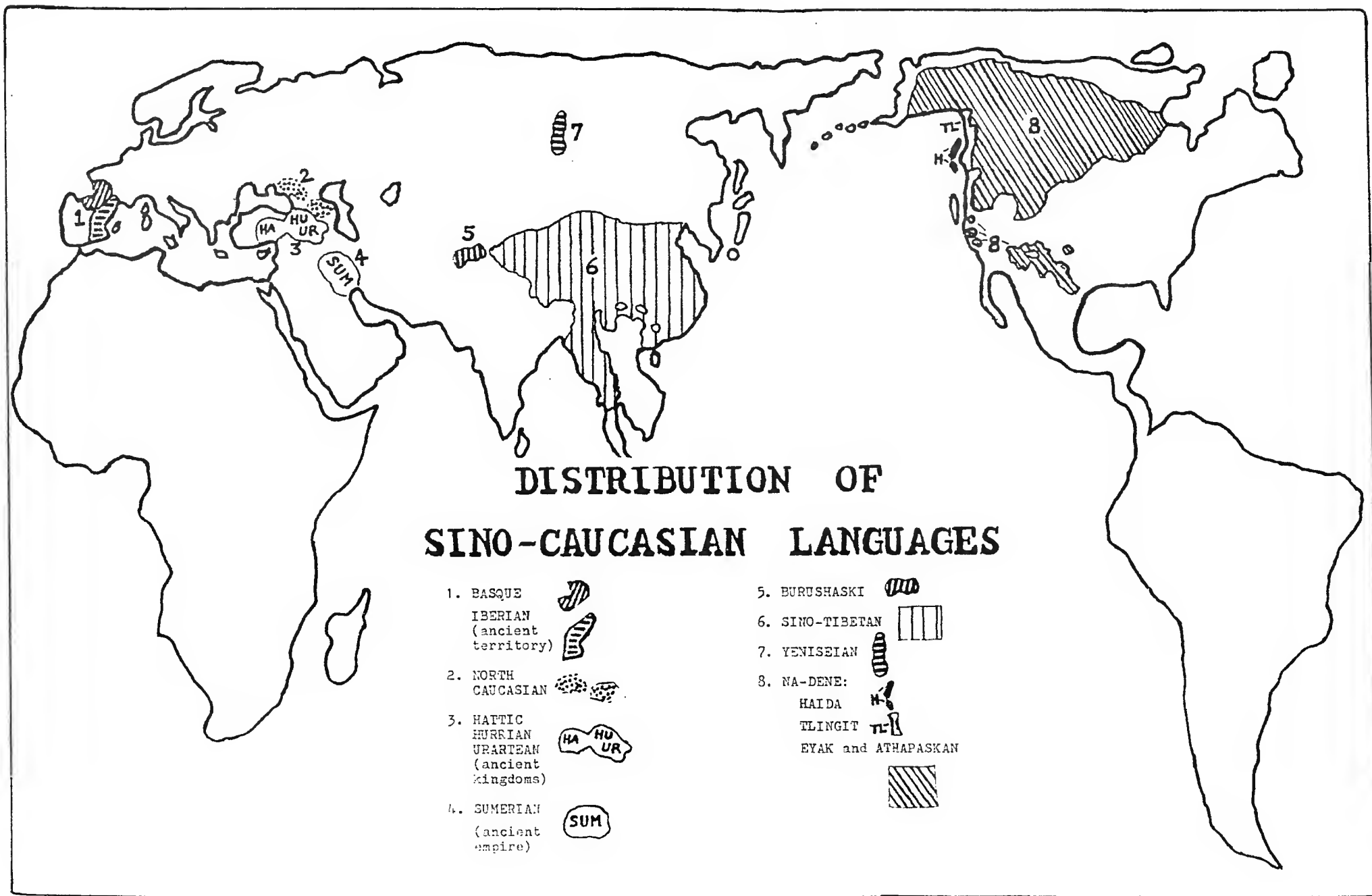
Abbreviations

E. - Eyak; N. - Niukh; Nav. - Navaho; PAlg. - Proto-Algonquian; PEA - Proto-Eyak-Athapascan; PEC - Proto-East Caucasian; PLezg - Proto-Lezgian; PNaD - Proto-Na-Dene; PNakh - Proto-Nakh; PNC - Proto-North Caucasian; PND - Proto-Nakh-Daghestanian; Psa - Proto-Salishan; PSinC - Proto-Sino Caucasian; PST - Proto-Sino-Tibetan; PWC - Proto-West Caucasian; PY - Proto-Yeniseian; TL - Tlingit.

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NOTES ON SINO-CAUCASIAN

John Bengtson

I

INTRODUCTION

The hypothesis of a Sino-Caucasian macrophylum has been gradually evolving over at least seven decades. As in the fable of the blind men and the elephant, several scholars have glimpsed parts of the whole, and have usually presented binary comparisons; e.g., Karl Bouda, who compared Basque and Caucasian (1948, 1949) and Caucasian and Sino-Tibetan (1950); V.A. Ćirikba, Basque and North Caucasian (1985); René Lafon, Basque and Caucasian (1952); Robert Shafer (1952, 1957) and Morris Swadesh (1952) compared Sino-Tibetan and Na-Dene, following up on the unpublished work of Edward Sapir; and Sergei A. Starostin, North Caucasian and Yeniseian (1982).

The first intimation of a multilateral Sino-Caucasian macrophylum was probably given by Alfredo Trombetti (1926), proposing special ties between Basque, Caucasian, "Indochinese", "Paleo-Asiatic" (including Yeniseian), and Western North American (i.e., Na-Dene), all in the context of his monogenetic global hierarchy. Karl Bouda (1957) presented a multilateral study comparing Caucasian, Burushaski, Sino-Tibetan, and Yeniseian; and the following year Olivier Guy Tailleur (1958) compared Basque, Caucasian, and Yeniseian, and discussed the possibility of relationships with Sumerian, Burushaski, and Sino-Tibetan. (Of course, some of the early researchers did not separate North Caucasian from Kartvelian, or Sino-Tibetan from Tai. More complete listings of the early Sino-Caucasian literature may be found in Tailleur 1958, Starostin 1982, and Blažek 1989c.)

The most recent phase of Sino-Caucasian scholarship, by researchers in the Soviet Union, has placed the hypothesis on much firmer ground. The principal work is by Sergei A. Starostin (1984), comparing North Caucasian, Sino-Tibetan, and Yeniseian. Sergei L. Nikolaev (1988, 1989) has revived the theory of a Na-Dene connection to Sino-Caucasian (or Dene-Caucasian). Both have produced tables of phonetic correspondences to support their case. V.A. Ćirikba (1985), Igor M. Diakonoff (Diakonoff and Starostin 1986), Vyacheslav V. Ivanov (1983, 1985), and Vladimir E. Orel (Orel and Starostin 1988) have also worked with various aspects of the Sino-Caucasian hypothesis.

On the basis of the aforementioned studies, and my own research, I include the following languages and language families in the Sino-Caucasian macrophylum:

- A. Basque (and possibly ancient Iberian);
- B. North Caucasian (including the extinct Hatti, Hurrian, Urartean, and possibly Gutian);
- C. Sumerian;
- D. Burushaski (Khajuna), including the dialects of Hunza, Nagir, and Werchikwar;
- E. Sino-Tibetan;
- F. Yeniseian (including Ket, Arin, Assan, Kot, Pumpokol);
- G. Na-Dene (including Haida, Tlingit, Eyak, Athapaskan).

Some other languages have also been tentatively identified by some as Sino-Caucasian:

- H. Etruscan (Ivanov 1983 and Orel & Starostin 1988);
 I. Nahali (suggested by Merritt Ruhlen and Harold C. Fleming in letters to the author, and in Ruhlen 1989).
 J. Gilyak (Nivx); and K. Chukchi-Kamchatkan (Chukotian);
 L. Almosan-Keresiouan (Amerind, according to Greenberg 1987, Sino-Caucasian according to Shevoroshkin 1990)

I have not investigated some of these hypotheses sufficiently, or am not yet convinced of the Sino-Caucasian affiliation of some of the languages. Some of the possible correspondences are given in the notes to etymologies.

The Sino-Caucasian hypothesis may strike one as highly audacious, claiming, as it does, that there is a linguistic and historical bond uniting diverse tribes and nations from the Bay of Biscay, to the Bay of Bengal, to the Gulf of Alaska and beyond. It would also seem to ignore the supposed cultural and racial barriers between West and East, between Caucasoid and Mongoloid, and between the Old World and the New World. But is this not the beauty of this hypothesis, that it proceeds directly from linguistic evidence? Earlier hypotheses of classification sometimes emanated from cultural or racial assumptions, but the Sino-Caucasian idea is pure twentieth century. Why would anyone connect North Caucasian and Sino-Tibetan, and these again with Na-Dene, of all languages, if not for strictly linguistic reasons? It will be shown that these linguistic reasons are compelling:

(general gloss)	BASQUE	North CAUCASIAN	SUMERIAN	BURU-SHASKI	SINO-TIBETAN	YENI-SEIAN	NA-DENE	(etymology number)
TONGUE	mihi	*mél'c' i	e-me	-melč' ¹	*mlaj		e-wari ²	(1)
				-yuung-us ³			t'aan-al ⁴	(2)
EYE	be-gi	*ɣ' ilhi	igi	-iil		*de-		(3)
					*mjāk		waq ⁵	(5)
WATER	i-thoi ⁶	*tuɣv ⁷	tu ⁸	thii-š ⁶	*thu ⁹		*tu ¹⁰ *th ^u	(82)
	i-hin-tz ¹¹	*xūnʔi		huu-š ¹²	xu ¹³	*xun ¹	hin ¹⁴	(84)
RODENT	sagu ¹⁵	*c'wargg ^{WV} ¹⁶		(čərg-) ¹⁷	*srāj ¹⁸	*saŋq ¹⁸	calg- ¹³	(92)
YELLOW		*ččakk ^{WV} ¹⁹	sig ²⁰	šiq- ²¹	*čāk ²²	*tāk ²³	*cux ^{W-24}	(125)
THOU	hi	*Gu		gu-, go-	*k'wvj	*kv-	yi ²⁵	(143)
	zu ²⁶	*z'wv ²⁶	za-, ze-					(144)
WHAT?	ze-	*ša		-ša-	*su ²⁷	*sv	*sv	(146)

NOTES: 1. 'jaw' 2. Hare 3. Werchikwar dialect 4. Haida 5. Tlingit 6. 'a drop' 7. 'apittle' 8. 'to pour out' 9. Old Chinese 'spittle' 10. Athapaskan 11. 'dew' 12. 'moisture' 13. Hruso 14. Tlingit 'fresh water' 15. 'rat, mouse' 16. 'weasel, marten' 17. Shina 'woolly flying squirrel' 18. 'squirrel' 19. 'white, yellow' 20. 'yellow, green' 21. 'yellow, green, blue, gray' 22. 'red, gold' 23. 'white' 24. 'yellow, (green, blue)' 25. Tlingit 'you' (pl.) 26. 'you' (pl.) 27. 'who'

METHODS AND STRATEGIES

Whether applied at the family level (e.g., Romance, Bantu, Athapaskan), the phylum level (Indo-European, Central Niger-Congo, Nadené), or the macrophylum level (Eurasian, Congo-Saharan, Sino-Caucasian), the principles and methods are basically the same for determining the genetic affiliation of languages. However, in actual practice, there are some differences of emphasis when treating deeper (macrophylum) levels of relationship.

The basic steps are (a) survey, involving data-gathering from the languages being investigated. Ideally, the survey should include all possible languages (depending on the scope of the study), but practically this may be limited by available materials and the inclinations of the researcher. In long range comparisons it is especially important to focus on the most basic and stable parts of the lexicon, since at time-depths of 10,000 years or more, little or no cultural vocabulary remains in common. At this stage of the comparison one looks for resemblances, generally superficial, but there may be preliminary assumptions about phonetic correspondences. (E.g., Greenberg 1987: 164, 4th paragraph.) The next stage is (b) classification, the grouping of languages according to observed resemblances. Only after classification has taken place are further steps, such as (c) reconstruction, in order. Thus, the "proof" of linguistic relationship is not reconstruction (step c); it is rather at the classification stage (b) that relationships become more or less obvious, on the basis of lexical and grammatical isoglosses. (This is in accord with the principles outlined by Greenberg 1987, et alibi, and Ruhlen 1987.)

Some differences between short-range (lower-level) comparison and long-range ("deep", macrophylum level) comparison are as follows: (a) Degrees of correspondence at the macrophylum level are not comparable to those at the lower levels of relationship. So, while a family-level relationship such as Romance or Bantu may be obvious to even the untrained observer, and the phylum-level is somewhat less apparent to the linguist, the macrophylum-level relationship is even more elusive, but discernible by the comparative method.

(b) Lexical, rather than grammatical, isoglosses are paramount at the deeper levels of comparison. Grammatical paradigms, so dear to comparativists at the family and phylum level, have developed within rather recent times, and thus are often not reconstructible at the macrophylum level. On the other hand, basic lexical elements persist regardless of grammatical changes.

(c) Semantic shifts are not only acceptable, they are to be expected (provided, of course, that the shifts are plausible, and, if possible, typologically verifiable by other examples from the same or other language groups). So, for example, the semantic relationship of 'eye - face - chin - cheek - beard - mustache' (nos. 5 and 16) is shown both within Sino-Caucasian, and in other language families and phyla. Similarly, 'one - finger' (no. 25), and 'five - ten - hand' (nos. 27 and 30). At time depths of 10,000 years or more (Starostin 1989), such semantic shifts are to be expected.

(d) Negative evidence is irrelevant. Thus, the claims that Indo-European and Uralic, or Basque and Burushaski, cannot be related because the respective pairs of languages share few or no numeral isoglosses, are to be dismissed. Linguists who make such claims

ignore the possibility of vocabulary replacement over many millennia, and the fact that numerals, beyond 'two' or 'three', have evolved within relatively recent times. (Even in Indo-European, there is no single common word for 'one'!) The comparative linguist cannot expect long-range language groups to behave in every respect like the familiar Indo-European.

On the basis of the above principles, and for the purpose of the present study, it is assumed that the Sino-Caucasian languages (Basque, North Caucasian, Sumerian, Burushaski, Sino-Tibetan, Yeniseian, and Na-Dene) are members of a macrophylum-level grouping, based mainly on lexical isoglosses (of which the present etymology section is only a partial listing), but also on some structural analogies (cf. the section "Sino-Caucasian Prefixes"). Starostin, on the basis of NC, ST, and Yen, dates Sino-Caucasian to the 8th or 9th millennium B.C. (1989: 43). With Na-Dene factored in, the date would be somewhat earlier.

SINO-CAUCASIAN PHONOLOGY

Tables of phonetic correspondences, in and of themselves, do not 'prove' a linguistic relationship. However, once a group of related languages is distinguished, it follows naturally that regularity of correspondence will be observed in the etymologies of that group. A cognizance of such correspondences will assist in the refinement of etymological knowledge of the language family. For example, let us look at the Na-Dene words for 'fire':

Haida č'aaʔano
 Tlingit č'aaŋ ~ q'aan
 Eyak-Athapaskan *qunʔ

At first it might seem that these words all belong together, and indeed some have placed them in one etymology, e.g. P 55 (with the notation of "unklarer Entwicklung" in Haida). In a Sino-Caucasian context, with attention to probable phonetic correspondences, the words sort themselves into three distinct etymologies: (a) Haida č'aaʔano belongs with ND *c'e- 'smoke', NC *c'aji 'fire', etc. (no. 65 in the etymology section; ND *c'- becomes Haida č'-); (b) Tlingit q'aan belongs with Ath *-k'anʔ 'to burn' and ST *kən 'to burn, roast' (RS 13.2); (c) Eath *qunʔ belongs with ST *qun 'smoke', etc. (no. 62).

The following table of correspondences is presented as exploratory, since my data are not sufficient to be certain of all correspondences. The framework of the consonant system is that of Sergei Starostin (1989), which was simplified from that of the same author (1984). The reflexes in North Caucasian, Sino-Tibetan, and Yeniseian are not repeated here, it being the intent to supplement them with probable reflexes in Basque, Sumerian, Burushaski, and Na-Dene. Reflexes in parentheses are based on unique matchings in my data.

Sino-Caucasian:	Basque:	Sumerian:	Burushaski:	Na-Dene:	(etymology number:)
**p (=p ^h -)	p(h)-	(p-, ¹ -b)	*ph-> ph~pf-, -p	(?w-, -ʔ)	14, 61, 63, 64, 78, 97, 104
**b	b-, ² ø-	b-	b-	w-	13, 30, 35, 36, 50, 81, 89, 108, 123, 754
**p'			(p-)		37
**t (=t ^h -)	t(h)-	t-	t(h)-	t-	33, 63, 82, 120, 141
**d	(d-)	d-	d-	d-	47, 59, 70
**t'		(d-)	t- ³	t'-	24, 101, 104
**T ⁴		(t-)	t-		102, 121

Sino-Caucasian:	Basque:	Sumerian:	Buru-shaski:	Na-Dene:	(etymology number:)
**k(w)	(kh-, h-, -k, -g)	k-, -g	kh-~q- ⁵ -k ~ -q	k-, -k (-x)	31, 39, 57, 67, 91, 98, 109, 111, 112, 125
**g(w)	g-, -g	(g-)	g-	(g-, -g)	7, 32, 88, 92, 93, 114, 119, 127
**x.	(h-)		(h-)	(x-)	84
**y	(h-)		(h-)		85
**q	k(h)-, -k(h)	g-, (-g)	q- (-q)	q-, -q	5, 40, 58, 62, 79, 96, 99, 118, 134
**G	g-, -g	g-, -g, (-g)	g-, -y	(G-, -G)	38, 41, 68, 69, 70, 86, 115
**q'	g-, (-g)	(-g)	(-q, -g)	(q'-)	6, 17, 34, 49, 95
**xq		(k-)	(x-)	(X-)	20
**X	h-	Ø-	x-, y-	X-	15, 77, 87, 90, 95, 106, 116
**s	z	(s)	s	s	39, 55, 100, 146
**c	s	z	s, c ^h	c	19, 27, 74, 80, 83, 91, 92, 93, 107
**z	(-z-)		(-čh-)		117
**c'	s, z	z	s, š	c'	14, 18, 58, 65, 110, 113, 122
**š	(s)	(š)	(š)	(š)	34, 100, 119
**č	tz	š ⁶	č-, (-č, -š)	č	16, 22, 51, 52, 57, 86, 148
**ž			(ž)	(ž)	88
**č'	(z-, -tz)	(-š)	(-š)	(č')	31, 124
**ś	(s)	s	š, s ⁷	ś(w)	11, 66, 126, 128
**ć		(s)	(š)	c	46, 125
**ś ⁸	z-		lt-	c'-	12, 56
**ʔ	Ø	Ø	Ø	ʔ	3, 68, 110
**h ₁	h-	Ø	h-	(h-)	48, 72, 109
**h ₂	Ø	Ø	h-		29, 131
**m	m	m	m	w-, -n	5, 9, 16, 56, 136, 140

Sino-Caucasian:	Basque:	Sumerian:	Buru-shaski:	Na-Dene:	(etymology number:)
**i	i	i, (e)	i, ɛ	i	3, 5, 14, 25, 26, 37, 83, 98, etc.
**ü	i, (e)	i	u, i ⁹	i	22, 27, 84, 106, 112, 126, 128
**u	u, o	u	u, i ⁹	u	13, 16, 23, 24, 38, 45, 57, etc.
**o	o	u	Λ, o ¹⁰	o	5, 30, 34, 40, 48, 52, 79, etc.
**u ¹¹	u	u	ə, (u)	i	19, 43, 65, 68, 91, 96, 131
**ɪ	i, (e)	(i, e)	Λ	?	72, 86, 103, 117
**e	e, (i)	e, (a)	ɛ, (ə)	e, (a)	1, 8, 54, 55, 137
**ä ¹²	a	(a)	a~Λ	a	12, 56, 75
**a	a	a	a~Λ	a	17, 20, 28, 31, 32, 73, 90, etc.

Notes to tables: 1. Sum pa 'staff, sceptre' = Bur -pfayo 'stick, staff'; 2. Bsq Ø only where NC has prefix *He- (nos. 54, 89); 3. Bur tum-ay 'shell of nut or fruit-stone' = NC *t'VimV 'kernel of a fruit' (NC 24); 4. **T may be an allophone of **t; 5. Bur q < SC **k^w (nos. 31, 39, 125); 6. Sum šika 'clay' = NC *šVq^w 'dirt' (NC 4); 7. Bur š before i, e, s before a; 8. **c' doubtful, may be allophone; 9. i may be the result of (secondary) umlaut; 10. o in uvular environment; 11. **u corresponds to NC *ɪ; 12. **ä corresponds to NC *ě.

* * *

If the above vowels indeed represent the proto-Sino-Caucasian vowel system, they may be charted as follows:

i	ü	u
ɪ	u	
e	o	
ä	a	

Such a system is typologically similar to the vowel systems of Northeast Caucasian languages, such as Bezhta (8 vowels), Rutul (9), or Budukh (10); among non-Sino-Caucasian languages, cf. Estonian (9), Tavgy (9), or Korean (9). (Ruhlen 1975: 169, 171, 192, 224, 262, 275)

PHONOLOGY: Some special cases

It is not claimed that all the seemingly irregular and anomalous phonetic equations in the etymology section are readily explicable. Indeed, we know from the study of other language families that the most basic and diagnostic etymologies are prone to be replete with irregular correspondences. (For example, in Indo-European, the notorious cases of 'tongue', 'navel', 'spleen', 'name'.) This tendency is also present in Sino-Caucasian: Werchikwar -yung- 'tongue' and Haida taan- id. recapitulate the alternation of Russian jazyk and English tongue (etymology no. 2); and note also the cases of 'tear' (6), 'ear' (8), 'navel' (53), 'name' (137). The existence of such cases in no way interferes with the abstraction of regular correspondences from the mass of compared lexicon.

Some phonetic explanations will be attempted here: The change of SC **RH to Basque -rr is regular, e.g. be-larri 'ear' (8), garr- 'bitter, sour' (118); likewise, SC **NH to Basque -in~ñ, e.g. soin~soin~sün 'body' (43), zain~zain 'vein, nerve, root' (55), a-kain 'tick' (99); in corresponding cases Sumerian has -Ø-: su~zu 'flesh, body' and sa 'sinew, rope' (see note to no. 43).

In some cases Sumerian g corresponds to SC **H (unspecified 'laryngeal', possibly **ç or **x ?): Sum igi 'eye' < **ilhi (3); Sum dug~du~du 'knee' < **duh- (59); possibly also Sum gug 'tooth' < **HuH- (cf. ND *?ux~*xwu? 'tooth', ST *s-(H)wa id. RS 2.2, P 80).

In two cases Na-Dene initial *ɬ = *tl- corresponds to apical stops elsewhere: ND *hiq- 'finger, one' (25) and ND *Avk-(?) 'land, earth' (76). In both cases, it appears that the following vowel was front (i).

In several cases there is an apparent alternation of nasals, n in some languages, m in others:

- (6) Basque neg-arr 'tears' / NC (Lak) maq' id.
- (55) Basque zain 'vein', etc. / NC *sēmhiV 'sinew', etc.
- (69) Basque e-gun 'day' / NC *Gwēm-tV id.
- (74) ND (Ath) *sün? 'star' / Bur (W) a-sum-Un id.
- (126) NC *śünV 'blue, green' / ST (TB) *sīm 'blue', etc.
- (128) NC *śūno 'year' / Sumerian sum-un~sun 'old'
- (134) NC *qVnV 'woman' / Sum geme, Yen *qVm- id.

In most of the cases there is clearly a labial vowel in the root. In others, external comparison indicates a probable original labial vowel causing assimilation: (55) probably belongs with Nost *sonhV 'sinew', etc. (Illič-Svityč 1967: 341); for (134) Starostin (1989: 56, no. 60) posits SC *qwenV 'woman' and suggests common origin with Nost *küni 'wife, woman'. Starostin's reconstruction implies a feature transfer from the first consonant to the second (in the languages with -m): *qwenV > *qenV = *qemV.

A similar case is found in Yeniseian *bunč- 'face, chin' (16). Here the n is intrusive, apparently assimilated to the original initial nasal m- (SC *muč(?), but before the change of **m- > *b-: **müč- > **munč- > *bunč-). (There are typological parallels in Indic, e.g., Skt madhya- > Hindi māñh, Eastern Roman manj 'middle'.) Cf. also SC *wVmV 'moon', compared to Nost *mVnzV 'lunary' (Starostin 1989: 59, no. 129), apparently **mVn- > **wVm- (assim.) > **wVm- (dissim.).

SINO-CAUCASIAN PREFIXES

The prefixing of elements to nouns and verbs is salient in many Sino-Caucasian languages. The following discussion is focused mainly on nominal prefixes.

Prefixing of possessive elements is (or was) widespread in Sino-Caucasian, e.g.:

- Basque: ni- 'my', hi- 'thy', zi- 'your', gi- 'our' (as in ni-haur 'myself', etc.)
 North Caucasian: (Abkhaz) s(ə)- 'my', u-, w- 'thy', ha- 'our', etc.
 Burushaski: a- 'my', gu- 'thy', mi- 'our', etc.
 Yeniseian: Ket ab- 'my', uk- 'thy', etc.
 Na-Dene: Navaho Si- 'my', ni- 'thy', bi- 'his', etc.

On the other hand, it appears that possessives were suffixed in Sumerian (-mu, -ma 'my', -zu, -za 'thy'). This may indicate that the position of the possessive was still in flux at the breakup of Sino-Caucasian. (For typology, cf. Norwegian far min 'my father' vs. Swedish and Danish min fa(de)r id.)

Several languages also have prefixes to indicate neutrality of possession (indefinite possessor):

- North Caucasian: e.g., Abkhaz a-, as in a-bla 'eye' (neutral possession)
 Burushaski: i- or mi-, as in i-čhar 'a voice', i-ču 'a footmark', mii-me 'a tooth' = 'our tooth', my-utis 'a foot' = 'our foot'
 Na-Dene: ND *ʔA-: Tlingit ʔA (3rd person, indefinite, 'some one'); Navaho ʔa- (indefinite possessor, as in ʔa-naaʔ 'an eye' vs. bi-naaʔ 'his/her eye'), Chipewyan ʔe- (indefinite possessor), etc.
 Sino-Tibetan: TB *a-: Kachin myi~a-myi 'eye', Burmese ā-mi 'mother', ā-sa 'flesh', Lepcha kuṃ 'tree': a-kuṃ 'bush' ('the prefix is retained only in forms . . . used independently, i.e. without the customary pronominal prefixes.' Benedict 1972: 121)

Paul K. Benedict (1972: 122, note 337) makes the typological comparison of Sino-Tibetan with Abkhaz and Navaho. Possibly a prefix such as these, fossilized as in some Sino-Tibetan languages, underlies the numerous Basque prefixes (a-, e-, i-), e.g. a-ragi 'flesh' (44), a-raultze 'egg' (51), a-rrats 'night' (71, cf. NC *h¹i-rink¹i id.), a-gure (old. mar' (127), e-gun 'day' (69), e-uri 'rain' (85), e-gurr 'firewood' (cf. NC *gur-dv 'log'), i-zarr 'star' (73, cf. NC *Ha-ʔ3war¹i id.), i-barr 'valley' (81), i-thoi 'a drop' (82), i-hintz 'dew' (83), i-gel 'frog' (95), i-zen 'name' (137), etc. Other North Caucasian parallels: *He-c'wemV 'eyebrow' (12), *He-berc'i 'wolf' (89, cf. Hatti ha-prašš 'leopard'), *h¹Wi-mizzu 'honey' (117), *Hi-mic'cV 'end, edge' (NC 15, cf. Burushaski muš 'end, edge').

Also prominent in Basque are the prefixes be-, bi- with names of body parts: be-gi 'eye' (3), be-larri 'ear' (8), be-phuru 'eyebrow' (13), be-hatz 'thumb, toe' (31), bi-zkarr 'back' (39), bi-hotz 'heart' (48), bi-zarr 'beard, chin' (cf. NC *mo-é or v 'beard, chin' NC 15). The last comparison (b~m-) is reminiscent of Benedict's (1972: 111) observation that "confusion between prefixed *b- and *m- (a pronominal element) is widespread in Tibeto-Burman." The shape and function of Basque be-, bi- is very close to that of ST *m-, as in Meithei mə- (3rd person pronominal prefix, also inseparable prefix with kinship terms, words for parts of the body, etc.): mə-pa 'father' or 'his father', mə-ko 'head', mə-tu 'feather', mə-ya 'tusk', etc.; cf. Tib m-go 'head', m-chu 'lip', m-thebo 'thumb', etc. In other Sino-Tibetan languages the "same" prefix has the phonetic form bə- (Empeo) or pə- (N. Khami, Lakher). According to Benedict (1972: 119) ST *m- is an old pronominal element.

In Burushaski, the indefinite possession prefix mi- (mi-ltin 'a bone', etc.) may have its origin in the same element, though it has converged phonetically with the first person plural prefix. In Na-Dene, Athapaskan *wa- (= Sapir's *mə-, ND 45) functions as the third person possessive prefix, manifesting as Sarsi mi-, Chipewyan be-, Mattole and Apachean bi-, e.g. Navaho bi-naa? 'his/her eye'. This is considered cognate with other ND demonstratives: Eyak wa- 'it', Tlingit we 'that near thee', and Haida wa 'that' (ND 45, P 100). ND *w- can come from SC **w-, **m-, or **b-, but it is probable that the *wV- demonstrative is cognate with the common Sino-Caucasian demonstrative *mV 'this, that' (NC *mV, Yen *wV : Yen 30, Starostin 1989: 64, no. 3).

Numerous by-forms in *bV may indicate that it was an early variant of *mV. Basque has he-me-n 'here', but he-be-n in the Souletin dialect. Otherwise in Basque b- predominates: b- in third person imperative, be-ra 's/he her/himself', be-re 'his/hers', and the noun prefix be-, bi-. Since the latter is associated only with body parts (and closely associated substances, such as be-ha-zun 'gall, bile': NC *qumhi id., BNC 53), it would appear to be a class marker, now desemantized and "petrified" (Bcuda in BK 106). Václav Blažek (1989a) suggests comparison with Northeast Caucasian *b- (a prefix of inactive nouns), also Sino-Tibetan *b- (mentioned above) and Sum-erian bi 'this'. (Trombetti 1926: 84 compares Basque b-, NC *b-, and Ath b-; Tailleux 1953: 422, no. 4, compares Basque be-, b-, NC *b-, Sum bi, and Ket bu, b-, 3rd person.)

In sum, SC **mV and **bV, if they ever were of distinct origin, were early contaminated or merged in some languages. As a nominal prefix, **m-/b- functions variously as third person marker, indefinite possession marker, class marker, and finally, desemantized and petrified, as in Basque and some ST languages.

Other demonstratives have an initial laryngeal, e.g. Basque ha-, he-, ho-, hu- 'this, that' (with three degrees of proximity); NC *hV, *hu (demonstrative), *ʔi 'this', *ʔa 'that'; Sumerian u 'this'; Burushaski i-, e-, u- 'that, those'; Sino-Tibetan *ʔi 'this', *ʔa 'that', *hu 'that'; Na-Dene *ha-i 'that', *hu 'he, she, it'. (Trombetti 1926: 81-82, NC 7, 28, 29, SC 53, 59, IST 41, P 167, 168) These elements may underlie some of the Basque and North Caucasian prefixes listed above.

A few other Sino-Caucasian nominal prefixes are faintly discernible. There is a type with a resonant liquid, ***RV-**:

- Basque: li-stu 'saliva', l-urrin 'odor, steam',
li-ntsusa 'saucy' / Holunder / Sambucus
 nigra' (Trombetti 1926: 60, BKE 12)
 Sumerian: ? li-biš ~ li-piš 'heart' (if not from AA)
 Burushaski: la-čhaar 'morning star' (73)
 Sino-Tibetan: Hruso li-coj 'star', Midzu le-sut
 'fat', TB *r-mip 'name', *r-may 'tail'
 (Digaro le-mi ~ le-mip), *r-sa 'vein, sinew,
 root' (Kachin le-sa id.), etc. (IST 177,
 187, Benedict 1972: 109-110)
 Na-Dene: ? Tlingit li-cin 'strong', la-cin 'strength'
 (43), Eyak li-xa? 'brown bear' (90)

And a nasal type:

- Basque: in-tzigar 'frost' (36), in-khatz 'charcoal',
in-hurri 'ant', (dialectal) in-harr 'hot
 coal', en-zurr 'bone', in-gel 'frog', etc.
 (Trombetti 1926: 60)
 Sumerian: en-tena 'frost' (120, ten 'cold')
 Burushaski: -n-dil 'breast', -n-co 'paternal aunt',
 -n-go 'uncle', -n-gi 'beard'
 Na-Dene: Sarsi ne-k'us 'cloud', Chipewyan -n-ye-da
 'chin', -n-zi 'name', Beaver -n-la? 'hand',
 -n-wō? 'nose', Navaho -na-yah '(lower) back',
 etc.

Frequently one finds different prefixes with the same root, in Basque dialects, and in Sino-Caucasian in general (or no prefix):

- Basque: e-zurr / en-zurr / a-zurr 'bone',
i-harr / in-harr / txin-garr 'hot coal',
i-hel / in-gel / ne-gel 'frog' (95)
 Basque e-gun 'day' / NC *G^wem-tv, Bur gun-c id. (69)
 Basque e-gurr 'firewood' / NC *gur-dv 'log' (NC 6)
 Basque i-zarr 'star' / NC *Ha-zzWarGi id. / Bur la-
 čhaar 'morning star' (73)
 Bur (W) a-sumUn 'star' / ST (Hruso) li-coj id. (74)
 Sum en-tena 'frost' / ND (Beaver) es-tēne 'ice' (120)
 Basque a-gure 'old man' / ST (Hruso) mo-khro (127)
 Basque i-zen, ND (Navaho) -i-ži? 'name' / ST (Tib)
m-can / ND (Chipewyan) -n-zi / (Tanana) -o-
 zad 'name' (137)

These and other examples may indicate that noun prefixing was a tendency in the Sino-Caucasian proto-language (or proto-dialect-cluster), but specifics were still in flux, and were not fixed until after migrations had taken place, and the daughter-languages had diverged considerably.

The Compression Theory of Prefixes: This theory was put forward by Robert Shafer (1974: 21), claiming that the "compression" of the first part of words (by accent on the following syllable) has resulted in some of the apparent "prefixes" in Sino-Tibetan.

This is not to say that all prefixes are to be analyzed in this way, but clearly some cases can be pointed out, e.g. no. (1) Sino-Tibetan *m-laj 'tongue' is actually *mlaj, from SC **meli or **melc 'i'. The first vowel has disappeared but possibly modified the following vowel, while the initial m has merged phonetically with the prefix *m- of separate origin. In no. (7) ST (TB) *g-na 'ear' probably comes from ST *k(h)u + *naH, where the first element is cognate with ND *gu- 'ear', and the latter element is another SC etymon for 'ear' (SC 14). In some ST forms the original shape is preserved, e.g., Tsamphung khu-nu, Kukish *-ku-ar 'ear', Sbaliti ko 'to hear', etc. In no. (21) ST *(s)na is really *sna, probably compressed from **suná, cf. Hurrian sunA 'breath', etc. Just as in no. (1), the root vowel has disappeared, and the initial consonant has phonetically merged with an unrelated prefix.

The compression phenomenon is not restricted to Sino-Tibetan. Basque intzaur ~ intxaur 'nut' (106) is probably originally a compound, from SC **Xúns-Hur- (105, 106). The phonetic correspondences with Bur xUnzUr and ND (Ath) *-xe(n)X? 'egg' are regular. NC *XúwX is probably altered by assimilation. SC **X- is regularly h- in Basque, so *hintzaur became intzaur when initial in- merged with the prefix in- (see above). There is even a dialectal variant el-tzaur, apparently with a prefix substitution. So "prefixes" are not always what they seem to be.

Another characteristic of Sino-Caucasian prefixes is that a stem-initial consonant may be different (in voicing or aspiration) depending on prefixation or non-prefixation. The general tendency seems to be a predominance of lenis (voiced) consonants in initial, unprefixed position, and fortis (unvoiced, aspirated) in medial, prefixed position. E.g.:

Basque buru 'head' / be-phuru 'eyebrow, eyelash';
 Burushaski buur 'hair' / -l-puur 'eyelash' (13)
 Hruso gro 'white' / mo-k^hro 'old man' (127)
 Tlingit dAq 'inland' (without prefix) / -taq = -t^haq id.
 (prefixed form) (P 269)

A similar pattern is evident in some Burushaski reduplications, where the first consonant is lenis and the second is fortis:

(buur 'hair') / bu-puur 'down, fine wool' (13)
 (**GaRH- 'bitter') / ya-qay id. < **GaqarH- (119)

Naturally, this pattern has been altered in many cases by analogy.

Morris Swadesh (1952: 17^c), building on Edward Sapir's class discussions two decades earlier, noted:

There are broad structural similarities [between Sino-Tibetan and Na-Dene], particularly in the tendency to prefix-in-, but the earlier form of this trait has been variously changed in the modern languages. Prefixes are present in the earliest reported forms of Sino-Tibetan, but many of the modern languages have lost it or reduced its scope.

V

INTERNAL RELATIONS OF SINO-Caucasian

It has been noted that the subgrouping of a linguistic taxon is often much more difficult than the demonstration of the taxon as a whole. Since Starostin has so far worked mainly with the triad of NC + SP + Yen, and Nikolaev with the diad of NC + ND, one might assume two to four coordinate groups, but with the inclusion of Basque, Sumerian, and Burushaski, it seems less likely that all the groups are coordinate. Shevoroshkin (1989: 15) suggests that there is a western branch (Basque - North Caucasian - Hatti-Hurri-Urartean), and an eastern branch (Sino-Tibetan - Yeniseian - Na-Dene).

I am not ready to conjecture on the precise branching of Sino-Caucasian, but would point out the following isoglosses between Basque and Burushaski:

Basque:	Burushaski:	(etym. no.)
be- <u>phuru</u> 'eyelash'	-l- <u>puur</u> id.	(13)
<u>muthur</u> 'snout'	-m <u>UltUr</u> 'nostril'	(23)
<u>esku</u> 'hand'	<u>hiisk</u> 'wrist'	(29)
he- <u>gal</u> 'wing, fin'	<u>gal</u> -gi 'wing, fin'	(32)
bi- <u>hotz</u> 'heart'	m- <u>oos</u> '(her) heart'	(43)
<u>hil</u> (a) 'moon'	<u>hal</u> -Anc id.	(72)
<u>huralde</u> 'flood'	<u>haraalt</u> 'rain'	(85)
in- <u>tzigar</u> 'frost'	<u>chayuur</u> -Um 'cold'	(86)
<u>pinpirin</u> 'butterfly'	<u>pferan</u> 'moth'	(97)
<u>intzaur</u> 'nut'	x <u>UnzUr</u> 'walnut'	(106)
<u>arrezko</u> 'masculine'	<u>hiriiski</u> 'men's'	(131)
i- <u>zen</u> 'name'	<u>sen</u> -As 'named'	(137)
<u>hi-ri</u> 'to thee'	<u>go-r</u> id.	(143)
<u>hi-haur</u> 'thysself'	<u>gu-kher</u> id.	

These and other isoglosses, as well as grammatical parallels, indicate that the relationship between Basque and Burushaski is closer than that of coordinate members (phyla) in a macrophylum. The close correspondences in morphology are rather characteristic of two members or families belonging to the same phylum (e.g., such as Albanian and Armenian within IE). Such a phylum subordinate to Sino-Caucasian might also include North Caucasian (and Sumerian?), and would approximate Shevoroshkin's western Sino-Caucasian. It is also probable that the eastern members (Sino-Tibetan, Yeniseian, and Na-Dene) are distinct phyla rather than families subordinate to an eastern SC phylum.

VI

EXTERNAL RELATIONS OF SINO-CAUCASIAN

Any speculations as to the genetic relationships of Sino-Caucasian with other macrophyla would be, at this point, preliminary. However, in this author's opinion, there is strong evidence for distant relations between and among Sino-Caucasian, Eurasiatic (Nostratic), and Amerind, in particular. (This does not exclude the possibility of other macrophyla, such as Afroasiatic or Austric, being included in a "mega-super-phylum" - in the words of Harold C. Fleming, 1987: 214.) For example:

(gloss)	Sino-Caucasian	Eurasiatic (Nostratic)	Amerind	(etymology number)
'tongue'	**YVng-	**<u>ńangV</u>	**NingV	(2)
'hair'	**buru	IE *b^hreu-H-	**Poro	(13)
'hair'	**pinc'V	**p'unčE	**Puči	(14)
'fire, burn'	**tap-	**t'ăpV	**tapi	(63)
'water'	**xün?i	**yuńV	**Huńi	(84)
'gray, old'	**gure	**kirHV	**keri	(127)
'woman'	**q^wEnV	**kuni	**kuni/a	(134)
'I'	**m/i/	**mi	**ma	(140)
'who?'	**Ki	**Ke~**Ko	**KV	(149)

For details, see the etymologies referred to. As elsewhere, (**) denotes a quasi-reconstruction, preliminary and based on other reconstructions. For other interphylum comparisons involving Sino-Caucasian, Eurasiatic, Amerind, and other macrophyla, cf. Bengtson and Ruhlen 1988, Blažek 1988, Fleming 1986, Peyros 1989, Ruhlen 1989a, Ruhlen and Shevoroshkin 1989, Shafer 1963, Shafer 1965, Shevoroshkin 1989, Starostin 1989, Trombetti 1926.

SINO-CAUCASIAN ETYMOLOGIES

Introduction:

The following etymologies are not to be taken as fully representative of the Sino-Caucasian macrophylum. They represent rather the author's attempt to provide a more comprehensive and multilateral synopsis of the macrophylum, than has hitherto been available.

Previous Sino-Caucasian etymologies (e.g., by Shafer, Čirikba, or Starostin) have not been repeated here, except when additional evidence or additional languages have been introduced. In several cases, the etymologies represent a combination of two or more previously published etymologies. The latter have been acknowledged, insofar as known to the author, in the references and notes.

As in any attempt at a broad etymological synopsis, it is acknowledged that some of the proposed entries will eventually prove to be faux amis, whether by reason of chance convergence, contamination, borrowing, etc. While I have made every effort to minimize doubtful entries, I have in some cases let them stand, thinking it better to offer them to other scholars for eventual inclusion or exclusion, than prematurely to exclude evidence that could prove to be valid. In such cases, doubt may be indicated by a question mark, or by a comment in the notes.

Each etymology is headed by a general semantic glose (e.g., TONGUE₁) and a "phonetic gloss" (e.g., **meli). The latter is, in many cases, equivalent to a provisional Sino-Caucasian reconstruction. (** throughout denotes a provisional or secondary reconstruction, i.e. one posited on the basis of other reconstructions.)

Transcriptions: Only limited steps have been taken to unify phonetic transcriptions. Among these are a preference for:

č, ʒ, ċ, ʒ̣ = ts, dz, tš, dž
 p', t', k', c' = p̚, t̚, k̚, c̚ (glottalized)
 k^w, g^w, x^w, s^w = k_o, etc. or k_w, etc. (labialized)
 (q), ɢ, ʁ = (q), q, ɣ (uvular)

Sumerian and Basque are given in their traditional transcriptions; in a few cases, the latter language is supplemented by a phonetic transcription in slash brackets, e.g. (h)erxe = /erše/ in no. 54. Burushaeki and Na-Dene forms are modified according to the above preferences, and long vowels are indicated by doubling (e.g., aa rather than ā, a:). North Caucasian, Sino-Tibetan, and Yeniseian forms (mostly from Starostin, Nikolaev, and Benedict) are largely unaltered, apart from the above-mentioned transcriptional preferences.

Other symbols: ~ indicates 'varies with': variation may be mainly dialectal, as in Basque and Burushaski; or scribal, as in Sumerian; or elements of both, as in Tlingit or Eyak (different dialects transcribed by writers of various traditions).

(**) denotes provisional reconstruction, often based on the comparison of lower-level reconstructions. In these, P denotes labial (of undetermined quality), likewise: T (apical), K (velar or uvular), C (affricate), S (sibilant or affricate), H ('laryngeal'), N (nasal), R (resonant), V (undetermined vowel).

Suggested remote connections: Since the idea of a Sino-Caucasian macrophylum is still controversial, its remoter connections to other macrophyla must remain, for the present, even more debatable. Some suggestions for possible remote parallels are given by the author, and others are attributed to other authors. I do not necessarily concur in all suggestions of the latter type.

Sources: Basque and Sumerian forms have been taken from a number of standard dictionaries, or as otherwise noted. Burushaski forms are from Lorimer (1935-1938 and 1962). Other forms are taken from several sources. Abbreviations of sources are as follows:

AB	Bomhard 1988
AK	Almosan-Keresiouan, Greenberg 1987
Am	Amerind, Greenberg 1987
AN	Andean, Greenberg 1987
BK	Baskisch und Kaukasisch, Bouda 1948
BKE	Baskisch-Kaukasische Etymologien, Bouda 1949
BNC	Basque-North Caucasian, Ćirikba 1985
CA	Central Amerind, Greenberg 1987
CP	Chibchan-Paezan, Greenberg 1987
DC	Dene-Caucasian, Nikolaev 1988 and 1989
Eq	Equatorial, Greenberg 1987
Eur I	Eurasial, Shafer 1963
Eur II	Eurasial, Shafer 1965
GlobEt	Global Etymologies, Bengtson and Ruhlen 1988
Hokan	Hokan, Greenberg 1987
IP	Peyros 1989
IST	Introduction to Sino-Tibetan, Shafer 1974
JC	Catford 1986
Jen	Jenisseisch, Bouda 1957
K	Krauss 1964
L	Lafon 1952
LONA	Linguistic Origins of Native Americans, Ruhlen and Shevoroshkin 1989
MG	Macro-Ge, Greenberg 1987
MP	Macro-Panoan, Greenberg 1987
MTuc	Macro-Tucanoan, Greenberg 1987
N	Nostratic, Illič-Svityč 1971-1984
NC	North Caucasian, Nikolaev and Starostin 1987
ND	Na-Dene, Sapir 1915
P	Pinnow 1966
RS	Shafer 1952 (and 1957)
SC	Sino-Caucasian, Starostin 1984
STC	Sino-Tibetan Conspectus, Benedict 1972
SwH	Haida, Swanton 1911
SwTl	Tlingit, Swanton 1911
T	Trombetti 1926
TibKauk	Tibetisch-Kaukasisch, Bouda 1950
VS	Shevoroshkin 1989
Yen	Yeniseian, Starostin 1982

Abbreviations of Languages:

AA	Afro-Asiatic = Afrasian
AbAd	Abkhaz-Adyghan = Northwest Caucasian
Alt	Altaic
AN	Austronesian
Ath	Athapaskan = Athabaskan
Bur	Burushaski = Khajuna
ChukKam	Chukchi-Kamchatkan
Drav	Dravidian
EAth	Eyak-Athapaskan
IE	Indo-European = Indo-Hittite
Kartv	Kartvelian = South Caucasian
NakhDag	Nakh-Dagestan = Northeast Caucasian
NC	North Caucasian
ND	Na-Dene
NK	Niger-Kordofanian
NS	Nilo-Saharan
OChin	Old Chinese (various reconstructions, including 'Archaic' Chinese, 'Ancient' Chinese, etc.)
Pump	Pumpokol (extinct Yeniseian language)
SC	Sino-Caucasian = Dene-Caucasian
ST	Sino-Tibetan
Sum	Sumerian
TB	Tibeto-Burman
Tib	Tibetan (Classical) = Old Bodish
Ur	Uralic
Yen	Yeniseian

A. Parts of the body, etc.:

1. TONGUE₁ **meli (**mēlc'i):

Basque: mihi 'tongue', min-tzo 'speech, language'; cf. mili- 'to lick'

North Caucasian: NC *mēlc̥ci (SC 61) = *mēlc̥c'i (NC 14) 'tongue': Avar mac̥c̥, Lak maz, Dargwa miz, Archi mac̥, Chechen muot (gen. mett-in) id. (L 34)

Sumerian: me~e-me 'tongue, speech'

Burushaski: -mel̥c̥ 'jaw, jawbone'

Sino-Tibetan: ST *mlaj 'tongue' (SC 61): Longla, Mongsen

-mili, Ao Naga te-meli, Karen *ble, Nung phəle, Kabui bare, Kanauri le, Mikir de 'tongue'; cf. Kachin mli-ak 'to lick' (IST 195, 299, 309; STC 281)

Na-Dene: ? Ath: Hare e-wari 'tongue' (Holjer 1956: 222)

N: Starostin (SC 61) compares NC and ST. External comparison shows that the apparent ST 'prefix' (Benedict's *m-lay) is originally the initial root consonant.

2. TONGUE₂ **/y/Vng-:

Burushaski: (Werchikwar) -yuung-Us 'tongue' (cf. Hunza -um-Us)

Na-Dene: Haida taan-Al 'tongue' (SwH 272) ~ t'aan-Al (Sapir)

N: **y in the provisional reconstruction is a consonant of undetermined quality. For phonetic parallels, and possible remote connections, cf. IE *dn̥ghu ~ ing̊hu, Ur *hank-cV 'tongue' (N I: 18); Amerind *hene, Mapudungu dungu-n id. (LONA 76)

3. EYE **ʔilhi:

Basque: begi 'eye' (? be-gi)

North Caucasian: NC *ʔwilhi (SC 16) = *ʔw̥il̥i (NC 34) 'eye':

Abkhaz a-bla/a-la, Abaza la, Bats bqark̥, Chechen bqarg̊, Ingush bqarg̊, Avar ber, Andi har-k'u, Dargwa qule, Tabasaran ul, Lezgi vil 'eye' (L 42, Yen 119)

Sumerian: igi ~ (Emesal) ibi 'eye'

Burushaski: -i-cin (Werchikwar) -i-či 'eye'; cf. il 'eye (of a needle)', iil-(gAt) 'corner of the eye', -i-(pur) 'eyelash', (šiq)-iil 'grey-eyed', (sk)-iil 'face'

Sino-Tibetan: Tib i-tā 'to see', Lushei en 'to look, see',

Shiyang en ~ in id. (RS 14.1, Blažek 1989a)

Yeniseian: Yen *de- 'eye': Ket dē-š, Yug de-s, Kot tī-š,

Assan te-š id. (Yen 119, SC 16)

Na-Dene: Kato -ʔiig 'to look', Hupa -en, -iŋ, Chasta Costa ʔii 'to see, look at', Mattole -ʔin?, -ʔiiʔn, -ʔiil 'to look for' (RS 14.1)

N: Shafer (RS 14.1) compares ST and ND. Starostin (SC 16) compares NC and Yen. For Basque be-~bi-, see note to no. 48, below. For possible remote connections, cf. AA *ʔil- 'eye', Drav *ali 'eyeball' (Blažek 1989b: 14); ChukKam *ʔələ 'eye' (Mudrak).

4. EYEBALL/PUPIL **nVnV:

Basque: (begi)-nini-(ko) 'pupil of the eye'

North Caucasian: NC *nānV 'pupil of the eye' (NC 16)

Burushaski: nana 'eyeball' (cf. Shina nani id. <Bur substratum, as also in nos. 13, 61, 73, 92, 102; Shina is otherwise IE: Indic: Dardic)

5. EYE/FACE **moq~**miq:-

Basque: mokho~moko 'beak, front, face'; mokhoz-mokho 'face to face/ tête-à-tête/ unter vier Augen'; mik-usi 'to see, perceive'

North Caucasian: NC *mīqqV (NC 15) 'mustache': Avar migg, Chechen miq id. (L 40)

Burushaski: -moq(-Iš) 'cheek'; moq (manaas) 'to smile'; miq moq (etas) 'to smile'

Sino-Tibetan: ST *myaak 'eye' (STC p. 190); OCh *mjōk 'eye'; TB *myak~mik 'eye' (STC 402); Kanauri mik, Tib mig, Vayu mek, etc. id. (Forms with n-: Mongsen -nik, Tengsa -nyik 'eye' RS 10.3)

Na-Dene: Tlingit waq~wAq 'eye'; Eyak -laaX id.; Ath *(de-) nag~(de-)nay id.: Hupa naa?, Mattole -na?~naag-, Navaho -naa? 'eye' (P 230a); Mattole -ni? 'face' (RS 10.3)

N: Shafer (RS 10.3) compared the Sino-Tibetan and Na-Dene forms. *w- is the regular correspondence in Na-Dene to Sino-Tibetan and Sino-Caucasian **m-; Ath *n- could be derived from *my- = *m-, as suggested by Shafer. (Note the Sino-Tibetan forms with n-.) Shafer (Eur I: 7) connects the ST forms with IE *meigh- (Slovene miga 'eyelash', migati 'to wink, twinkle', etc.) and IE *meik- (Persian miža 'eyelashes', etc.). Cf. also Drav *muk- 'face, mouth', AA *maku/i 'mouth' (Blažek 1989b: 9); Amerind: Hoka *maki 'to see' (Hokan 125).

6. TEAR/PUS **nVq'V:

Basque: negar(r)~nigar(r) 'tears, weeping'

North Caucasian: NC *newqū (SC 1.3) = *nēwq'ū (NC 16) 'tear; pus': Lak maq, Tabasaran niqqw~niwqq, Kuri nayw~naw (pl. naqqwar), Rutul nayw, Dargwa nery, Udi ney (all) 'tear' (L 40)

Sumerian: mag-(bi), mak-(kaš) 'lamentation' (? lit. 'tear speech')

Burushaski: nagei~ (Nagir) maGei 'a boil' (pus-filled eruption); cf. naye~naye 'dung'

Sino-Tibetan: ST *nōk 'pus' (SC 1.3); cf. Groma (ṇō)-nag 'sweat' (IST 91)

Yeniseian: Yen *dok-ṇ 'pus' (SC 1.3)

N: Trombetti (T 249) connects Basque and NC. Starostin (SC 1.3) connects NC, ST and Yen. The Sum forms are plausible in light of the m- initials in NC (Lak) and Bur (Nagir dialect). For the alternation of initials, and possible remote connections, cf. IE *dak-r-u- (Gk dákru, Lat dacru-ma>lacrima)~*drak- (OHG trahan)~*Hak-r-u- (Skt ásru), etc., 'tear'; Kartv: Georg nagivi~nagavi 'rubbish'; AA: Berber: Kabyle nemeq 'to sob/schluchzen' (Blažek 1989a).

7. EAR, **gu:

Sino-Tibetan: Tsamphung h^hu-nu, Thami ku-lna, Lailenpi na-kua, Kabui nu-ko-an, Kukish *-ku-ar, Hrangkhoh mi-gu-r, 'ear'; Tib go 'to understand'; Sbaliti ko 'to hear' (IST 30, 31, 260, 267, 295); TB *g-na 'ear' (STC 453)

Na-Dene: Haida guu 'ear'; Tlingit guk^w~gŭk~guuk 'ear' (P 76, Sapir 1921: 146)

N: According to the 'Compression Theory of Prefixes' (Shafer 1974: 21), the TB 'prefix' *g- is probably an attenuated form of Sino-Caucasian **gu, which is also preserved more recognizably in some ST dialects. For possible remote connections, cf. Drav *kewi, Ur *kawi, Korean kui 'ear', Drav *kur- 'ear, earring', AA *gur/y- 'ear, to hear' (Blazek 1989b); Old Japanese kiku- 'to hear'; Indo-Pacific: Tasmanian ko-aa~ko-igi 'ear'; IE *keu-/kou- (Gk a-kou-, Eng hea-r, etc.); Amerind *Ku- 'ear' (Hokan 81, CP 56).

8. EAR₂ **lerH-:

Basque: be-larri~be-harri 'ear'

North Caucasian: NC *l̥(r)HIV 'ear' (NC 13): Dargwa lihi, Bats lar-k', Chechen ler-g, AbAd *l'V 'ear' (BNC 48)

Na-Dene: EATH *ṣex^(w) 'ear' (DC): Eyak-ṣe^hX; Ath *-ṣex-ə?: Chipewyan -ṣaya, Hupa -ṣiw?, Navaho -ṣaa? id. (K 64; P 76)

N: Ćirikba (BNC 48) connects Basque and NC. Nikolaev (DC) connects NC and ND. Basque be- is a prefix found in names of body parts (see "Notes on SinoCaucasian Prefixes"). The form beharri, as in French Basque, is apparently influenced by the verb beha- 'to listen'.

9. HEAD₁ **myt'o-:

Basque: mat-(el) 'cheek'; motho~moto 'hair-knot/ chignon', etc.

North Caucasian: NC *mat'V 'face' (NC 14): Hunzib, Bezhta mot'o 'face'; Lak (ṣunṣu)-mat'i 'snout' (Yen 15)

Burushaski: mato 'brain(s)' (cf. Shina mato id.)

Sino-Tibetan: Ṭsamba, Lahuli mot 'face' (IST 176); Burmese-Lolo *mwat 'head' (SC 1.11)

Yeniseian: *bat(t)- 'face': Ket bāt/ batt-, Yug ba:t, batt- id. (Yen 15)

N: Starostin (SC 1.11) compares NC, ST and Yen. Blažek (1988) compares NC, Bur and ST, and suggests remote ties with NS (SNilotic and Kuliak *mat-ag 'cheek'); Nost *mati 'skull'; Austric *mata/u 'eye'; Amerind *mata 'forehead'.

10. HEAD₂ **svq-:

North Caucasian: AbAd *sqIa 'head': Ubykh ṣa, Adyg, Kabardian ṣHa, Abaza qa id. (Yen 86)

Sumerian: saḡ 'head'; si 'horn'

Burushaski: -sk-(iil)~(Nagir) -ṣk-(il) 'face' (for -iil~-il, see no. 3); -A-ṣk-i 'at the head, under the head'

Sino-Tibetan: Tib (ʔos)-sko, Dimasa (khu)-sga 'chin' (STC 470, IST 141)

Yeniseian: Yen *cīGV (SC 25) = *cV?G- 'head': Ket tī?, Yug čī?, Kot tag-ai~tak-ai, Arin ke-dake id. (Yen 86)

Na-Dene: Haida (qaa)-ṣi 'head'; Tlingit si 'neck'; Eyak -ci?~-ci? 'neck'; Ath *-ci? 'head': Chipewyan -ṭi, Beaver, Navaho -ci?, etc. (K 18, P 15)

N: For possible remote connections, cf. NK: Bantu *-cooko, AA: Iraqw saga~c'aga 'head'; Amerind: **sako 'head' (CP 96, AK 96). Starostin (SC 25) connects NC and Yen.

11. HAIR₁ **śvk-:

North Caucasian: NC *śak^Wa/*k^Was^a 'tress, mane': Ubykh sak^W, Adyghe sak^W, Kabardian sok^W 'mane'; Tabasbaran kuś 'tress'; Avar k^Was 'wool', etc. (Yen 50)

Sumerian: śig 'wool, woolen, woolly or furry pelt'

Burushaski: śe 'wool'

Yeniseian: Yen *eug-: Kot sugai~sukai 'tresse' (Yen 50)

Na-Dene: Tlingit śa~śa 'head'; Eyak -śa- id., (śi)-śage '(my) head'; Ath: Chasta Costa śa-, Umpqua śa-, Galice śa- 'head' (in compounds) (P 18)

N: Starostin (Yen 50) connects NC and Yen. There has possibly been contamination of this etymon and the preceding (no. 10), and therefore confusion on the part of etymologists.

12. HAIR₂ **č'am-:

Basque: zam-ar(r) 'lock of wool'

North Caucasian: NC *Hč-c'^WemV (NC 2) 'eyebrow': Lak (ita)-c'ani, Tabasaran (ul)-č'im, etc. id. (Yen 66)

Burushaski: -itaan-c 'eyebrow' (or -l-taan-c ?)

Sino-Tibetan: ST *čam 'hair' (SC 23); Thebor (mik)-čam 'eyebrow', Kanauri (mik)-čam id., čam 'wool, fleece', Magari čam 'hair, wool', Sunwari čap 'hair', Lahuli (yar)-sam 'mustache', etc. (IST 140, 151; STC 73)

Yeniseian: Yen *čage: Ket tčage, Yug cčage, Ket hepai, Pumpokol xinga 'hair' (Yen 66)

Na-Dene: (ND **c'a(N)-c-) Haida skāā-zi 'eyebrow' (Sapir 1921: 154); Chipewyan -č'aθe, Navaho -c'^{os} 'feather'

N: Starostin (Yen 66 and SC 23) connects NC, ST and Yen. The Bur and ND forms, if they belong here, would presuppose a suffixed form (**c'am-c-). Roots of the type **c'Vm 'hair~feather~skin' are widespread as far as Khoisan (**č'um-) and Amerind (**čuma) (GlobEt 30).

13. HAIR₃ **buru / **phuru:

Basque: buru 'head'; be-phuru~be-puru 'eyebrow, eyelash, eyelid'

North Caucasian: (Udi for / fufru-x 'hair'; Kurin firi 'mane')

Burushaski: buur '(a single) hair'; bupuur 'down, fine wool'; -l-puur 'eyelash'; (-Aš)-puur 'mane' (lit. 'neck hair'); buuri 'crest, peak' (cf. Basque buru 'head') Shina buuri 'mane' (from Bur subetrum)

Sino-Tibetan: Tib d-bu 'head', s-pu 'hair', OChin *puu- 'hair' (IST 60; STC p. 117)

N: There are widespread possibilities for remote connections: NK: Bantu *-buli = *-budi 'body hair'; IE *b^hreuH- (Eng brow, etc.); AN *bulu 'hair'; Amerind **boro 'hair, feather' etc.

14. HAIR₄ **ph^hin(i)c'-:

Basque: phintz 'membrane, skin, shell'

North Caucasian: NC *pēnc'c'^Wy 'eyelash' (NC 16)

Burushaski: -phiinīśo~pfiinīśo '(human) hair of the head'

15. HAIR₅ **XVH-:
 North Caucasian: Bagulal huha 'hair'; Agul xej, Tabasaran xaj,
 Tsakhur xa 'wool', etc. (L 44)
 Burushaski: -yoY-Aḡ ~ yuy-Aḡ 'hair'
 Na-Dene: ND *Xa? 'hair': Tlingit Xa-w id.; Ath *xa? = *Xa?:
 Beaver -ya?, Mattole -ya? ~ -ga?, Navaho -yaa?, etc.
 'hair' (P 115)
16. BEARD **muč(?)-:
 Basque: musu 'lip, face, mouth, snout, kiss', musin 'snout,
 muzzle'
 North Caucasian: NC *moč'V 'braid, hair, beard' (NC 15): Archi
muč'-or, Rutul mič'-ri, Tsakhur muč'-ru, Agul muč'-ur,
 Tabasaran muč-ri, Dargwa muč'-ur 'beard'; Bats mač',
 Chechen, Ingush mač' 'mustache' (L 36)
 Sumerian: muš 'face, appearance'
 Burushaski: muš-k-Ane 'on one's face, face down'; muš-ki 'pubic
 hair' ('the beard below')
 Sino-Tibetan: Kanauri muč^{hā} 'mustache'; Rgyarong te-m³ā 'chin'
 (IST 60, 174)
 Yeniseian: Yen *bunč- 'face, chin': Kot punč-ol ~ punč-ol 'chin',
 Assan punč-ola 'cheek', pinč-olan 'chin', etc. (Yen
 p. 171)
 Na-Dene: ND *waš 'cheek' (P 96): Tlingit waš 'cheek'; Ath
 *mes = *wes 'cheek' (ND 47): Carrier (e-nim)-bes
 'cheeks'
 N: Yen *b- and ND *w- are the regular reflexes of SC **m-
 For the semantic relationship of 'face - chin - cheek -
 beard - mustache' cf. no. 5 above. Shevoroshkin (1989:
 102) compares SC *moč'V 'hair, beard' with Amerind *močV
 'beard'.
17. CHEEK **q'an-:
 Basque: gan-ga 'palate', gan-gar(r) 'uvula'
 North Caucasian: NEC *qwan?u 'face, cheek, flat surface' (SC 1.19)
 Sino-Tibetan: ST *Kwan 'cheek' (SC 1.19)
 Yeniseian: Yen *KVn 'face, mouth' (SC 1.19)
 Na-Dene: Haida q'an-(č'Ida) 'cheek' (Sapir 1921: 147)
 N: For possible remote connections, cf. Drav *kann- 'cheek',
 *kenn- 'cheek, jaw'; AA *gin-/gun- 'face, cheek, forehead';
 IE *gen-/ghen- 'face, jaw, chin'; Finno-Mordvian *koñ-
 'forehead' (Blažek 1989b: 6)
18. CHIN/JAW **C'Vn-:
 North Caucasian: NC *č'anV 'chin' (NC 4): Udi čānā, Tabasaran
čene, Bats č'an-ik', Chechen č'en-ig, Ingush č'en-g id.
 (L 36)
 Burushaski: -san 'chin'
 Sino-Tibetan: OChin *śjen 'gums' (STC p. 173)
 Na-Dene: Haida č'ig 'tooth'; Navaho (-yaa)-c'iin 'jaw, chin'
 N: Here, as in several cases, Bur s/š corresponds to SC
 **C'.

19. TOOTH **cah-:
 North Caucasian: NC *cihv 'tooth' (NC 1): Avar ca, Andi sol,
 Archi sot, Dargwa cula, Bats cark', Chechen cerig ~
cerg, Ingush cerg 'tooth' (L 35)
 Sumerian: sú ~ zu 'tooth'
 Sino-Tibetan: Tib m-chul- 'mouth' (IST 174)
 N: One must assume in several cases, loss of original
 final consonants for Sumerian, or possibly incomplete
 notation. See also nos. 1, 3, 43, 54, 55, 75, 86, etc.
20. MOUTH **xqa-:
 Sumerian: ka 'mouth, face'
 Burushaski: -XA-t 'mouth'
 Sino-Tibetan: TB *m-ka: Tib k^ha 'mouth, opening', Haka, Lushei
ka 'mouth', etc. (IST 46, STC 468)
 Na-Dene: ND *ʔaʔ-qa: Tlingit q^ha 'mouth or lips' ~ X'a ~ X'A ~
X'e 'mouth'; Ath: Chasta Costa yaa ~ ya- 'mouth' (in
comp.); Eyak xe- 'mouth' (in comp.) (P 79)
N: Starostin (SC 36) cites a somewhat similar root for
'mouth': ST *Khō(w)H, etc.; and cf. Basque a-ho 'mouth'.
21. NOSE₁ **sun-:
 Basque: su-dur(r) su-gur(r) 'nose'; sun-bin 'to sob'; sun-da
'smell, aroma'
 North Caucasian: Hurrian sunA 'breath, soul, self'; NEC *sun-
t'V: Dargwa sun-t' 'scent, odor', Lak sun-t' 'snuff',
Avar sun-t' 'snuff', sun-t'-ize 'to smell' (Fleming
1986: 7)
 Burushaski: šun (etas) 'to smell; to blow', šun (etas) 'to
smell'
 Sino-Tibetan: ST *(s)na 'nose' (SC 40): Tib sna, Dhimal hna-
pu, Nung sena, Kadu sena 'nose' (STC 101); TB *sun
'smell, scent': Tib b-sun, Kachin sun id. (STC 405)
 Na-Dene: Haida siin-an 'snuffling' (SwH 265)
 This ancient root has been recognized by many. Cf. Trom-
betti (T 309); Starostin (SC 40) connects ST and Yen *han.
Fleming (1986: 7-8) connects AA, Khoisan, NC, and ST; cf.
GlobEt 4. Here again, external comparison shows that the
apparent ST 'prefix' is actually a root consonant (cf. no. 7).
22. NOSE₂ **čun- ~ **čun-:
 Burushaski: -čhon-čun 'beak, bill'
 Sino-Tibetan: Vayu čonno, Thami čina 'nose' (IST 134, 142)
 Na-Dene: Ath *-čin-X 'nose': Chipewyan -(n)-č, Hupa -(n)-č^wiw,
Navaho -čih, Kiowa Apache -čih-s 'nose' (RS 21.2)
 N: This root is apparently related to the preceding (no.
21), except that the initial consonant is an affricate.
Shafer (RS 21.2) connected the Ath forms here with the
ST forms in no. 21.
23. NOSE₃ **multur (? **muA):-
 Basque: muthur(r) ~ mutur(r) 'snout, muzzle'
 Burushaski: -multur 'nostril'
 Sino-Tibetan: TB *mu-r: Tib mur 'gills', Nung mr 'face', Thado
mu 'beak', Khoibu mur 'mouth' (STC 366)

24. FINGER₁ ****t'up' ~ **c'up-** (? ****st'up-**):
 North Caucasian: NC ***t'up'V ~ t'wəp'V** 'finger' (NC 24)
 Sumerian: **dubb-in** 'finger, nail, claw'
 Burushaski: **cUp** 'finger's breadth' (measure); **capi** 'tweezers';
CAP (etas) 'to touch'
 Sino-Tibetan: Tib **m-zub-mo** 'finger' (IST 91) and/or Tib **theb**
 'thumb' (SC 1.15)
 Yeniseian: Yen ***təp-** (alče) 'thimble' (SC 1.15)
 N: Starostin (SC 1.15) connects NC, Tib **theb**, and Yen.
 It is difficult to say whether the initial stop or affricate is the original. Globally, forms with affricate are widespread, e.g. NK: Bantu ***-capi** 'finger'; AA ***c'VbVɕ**
 'finger'.
25. FINGER₂ ****tik'-**:
 Burushaski: **tišči** ~ (Werchikwar) **teščik ~ teštik** 'span' (distance measured by fingers; if not from Indic **dišti-**, see Lorimer 1935: xxiii)
 Sino-Tibetan: ST ***tyik ~ tyak** 'one': OChin ***tjak** 'single, one' (STC p. 94); Rai **tik**, Limbu **tʰik**, Rgyarong **ke-tiak' ~ ke-tiag**, Tib **g-čig** 'one' (STC p. 94; IST 113, 153)
 Yeniseian: Ket **tək**, Pumpokol **tok**, Kot **tog-an** 'finger' (Toporov 1967: 320)
 Na-Dene: Tlingit **tl'eq** = **ʔ'eq** 'finger', **tleeq** = **ʔeeq ~ tlex'** = **ʔex** 'one'; Haida **tleeṭl** 'five'; Eyak **-tlcəʔq'-** = **-ʔcəʔq'** 'finger' (P 67); Ath: Sarsi **tlik'**-(aza) = **ʔlik'**-(aza) 'one' (Hoijer 1956: 222)
 N: The Yen forms (***tok-**) can be derived from ****tik'o > **tok'o**. ****ti-** becoming ND ***ʔi-** is also found in the SC root for 'earth' (****tik-**, see below, no. 76). This root has numerous global parallels (see GlobEt 27).
26. HAND₁ ****ri(N)-**:
 Basque: **erhi ~ erri** 'finger, toe; finger's breadth (measure)'
 North Caucasian: NC ***rem-k'V** 'cubit' (NC 21), ***HV-rVm-kV** 'armful, bosom' (NC 33)
 Burushaski: **-riŋ** ~ (Werchikwar) **-reen** 'hand'
 Sino-Tibetan: Mikir **ri** 'hand', **e-ri** 'arm', **ri-(pak) ~ ri-(pek)** 'hand', **ri-(kan)** 'forearm'; Tamang (naa)-**ri** 'arm' (Matisoff 1985: 446)
 N: We may find, in Basque **e-rhi** and Mikir **e-ri**, an old 'petrified' SC prefix or demonstrative (see 'Notes on Sino-Caucasian Prefixes'). (Cf. Burushaski **ii-riŋ** 'his hand/its hand'.) Cf. Tasmanian ***ri-na** 'hand'.
27. HAND₂ ****cün-**:
 Burushaski: **chUn-do**, **chIn-di** 'five' (different forms for different nominal classes); Werchikwar **cen-di**, **cən-di** id.
 Sino-Tibetan: OChin ***cʰwan** 'thumb' (used for 'hand' in graphs); Karen **cū** 'hand/arm' (STC p. 158)
 Na-Dene: Tlingit **ʔIn** 'hand', (kee)-**ʔIn** 'five', **ʔIn**-(kaat) 'ten'; Eyak **-čil-i ~ -č'il-iʔ** 'arm' (SwTl 198; P 75)
 Alternation of **n/l** is common in Na-Dene (Pinnow 1966: 130-131).

28. HAND/ARM **laK-:
 North Caucasian: NC *Ho-lokV 'sleeve, wing' (NC 31); cf. Agul lak~lek 'foot'
 Sino-Tibetan: TB *lak 'arm, hand': Tib lag-pa, Burm lak, Akha a-la?, etc. id; Miri ə-lak 'hand', ə-la 'foot', Chai-rel lak 'hand/arm', la 'foot'; OChin *ljək 'strong, strength, force' (the graph seems to depict an arm with a hand) (STC 86; Matisoff 1985: 423, 429)
 Yeniseian: Ket laaŋ-at 'arm/hand', laŋ~laaŋ 'arm, hand, barb (of a hook)' (Bouda 1957: 93, no. 162)
 Na-Dene: Ath *la? 'hand': Beaver -n-la?, Hupa, Mattole -la?, Navaho -la?, etc. id. (P 67)
 N: Bouda (1957: 93) compares ST and Yen; Shafer (RS 10.1) compares ST and ND. For remote connections, cf. AA *la-/*lk- 'leg, foot', IE *lek- 'leg', Ur *lakV- 'leg' (N 255); Amerind: Hokan *lak- 'arm' (Hokan 4).
29. HAND₄ **h₂isk-:
 Basque: esku~eski 'hand'
 Burushaski: hiisk 'wrist; back of the hand'
 N: For phonology, cf. Basque buru and Bur buur (no. 13).
30. HAND/PAW **borc-:
 Basque: bost~bortz 'five'; bost-(eko)~bortz-(eko) 'hand, handshake'
 North Caucasian: NC *bōrccV 'paw; gammon (hog's thigh)' (NC 1)
 Burushaski: bac-in 'thigh'
 N: The relationship of 'hand' and 'five' is obvious and found also in no. 27; cf. IE *penk^W-/*pnk^W- (Eng finger, fist, five); cf. no. 25 ('finger' > 'one').
31. PAW/CLAW **k^Wač-:
 Basque: hatz 'finger, claw, paw', be-hatz 'toe, thumb, claw, hoof', etc. (meanings vary in different dialects)
 North Caucasian: NC *k^Wač^e 'paw' (NC 10); cf. also NC *k^WašV 'paw' (NC 10), *k^WvšV 'finger' (NC 12)
 Burushaski: qAš 'length from elbow to fingertips, cubit, half-yard'
 Yeniseian: Yen *kiʔs 'foot': Ket kiʔs, Yug kiʔs id. (Yen 40)
 Na-Dene: Ath *-keč 'claw', *-kes? 'claw (hand, nail)': Kutchin -kay 'claw', Hupa -kec', Mattole -č'e ʔx id., Navaho -keš-(kaan) 'nail' (P 67, Hoijer 1956)
 N: Trombetti (T 157) connects Basque and NC; Starostin (Yen 40) connects NC and Yen.
32. WING **gal- (or **Gal- ?):
 Basque: he-gal 'wing, fin'
 Burushaski: gal-gi 'wing, fin'
 Sino-Tibetan: ST *glak: OChin *glək 'wing' (STC p. 171; Matisoff 1985: 426); cf. Midzu klōŋ, Garo graj 'wing' (IST 185)
 N: For remote connections, cf. Altaic *gāla 'hand, arm'; Amerind: Hokan *galu 'arm' (Hokan 5); AA: Afar gal, galli, Saho galle 'wing' (T 90)

33. LIMB **tal- (? **taħ-):
 Basque: a-tal 'limb', (az)-tal 'calf (of leg), lower leg, heel'
 Burushaski: -l-tal-tar 'foreleg (of quadruped); shoulder (of horse); arm (of human)'
 Na-Dene: Eyak (-qi)-tatl = (-qi)-taħ 'to move the foot';
 Ath *-tAdl? 'heel': Minto -tUdl, Chipewyan -tal,
 Navaho -tal 'heel' (K 45)
34. HEEL **solq-:-
 North Caucasian: Dag *solq 'heel, foot': Tabasaran šaqI 'heel', Akhvakh šunk 'a foot', etc. (Yen 84)
 Burushaski: šoq 'sole (of boot)', (Nagir) šox 'cattle track'
 Yeniseian: Yen *sVGv-: Kot sug-(aiči), Arin i-žege-n 'heel' (Yen 84)
 N: Starostin (Yen 84) compares NC and Yen.
35. SOLE/PALM **bat-:-
 Burushaski: bada 'step, pace; sole (of foot or boot)'
 Yeniseian: Yen *bat-top: Ket bat-top, Kot fat-ap~p^{hat}-ap 'palm (of the hand)' (Yen p. 172)
36. PALM **bar-:-
 Basque: (esku)-bar-ne~ -barr-en 'palm'
 North Caucasian: NC *p̄war-k̄w̄v~ *bar-k̄w̄v 'palm of the hand' (NC 18)
 Sino-Tibetan: Tib s-par, Tsangla par 'palmful'; Kukish *pr-ŋa 'five' (IST 118, 232)
37. CALF/LEG **/p/ in-:-
 Burushaski: piini 'calf of the leg'
 Sino-Tibetan: Tib byin-pa 'calf of the leg', OChin *bin 'knee cap, knee, leg' (IST 51, 68)
 N: Lorimer (1938: III: 532-536) noted this and other parallels between Bur and ST.
38. BUTTOCK **Gut-:-
 Sumerian: gudu 'rump'
 Burushaski: git~git 'anus'
 Na-Dene: Haida Goot (n) 'buttocks', (adj) 'last'; Gooda 'buttocks'; Goda 'behind' (SwH 262, 270-71)
 N: For possible remote ties, cf. IE *ghed-, Alt *gedä, AA *gd- 'backside, nape' (N 81); Amerind **gote 'anus' (AN 4, CP 3).
39. BACK **skwv-:-
 Basque: u-zki 'anus', (bi)-zka-r(r) 'back'
 North Caucasian: (Abkhaz a-zk̄w̄a 'back')
 Burushaski: -sqa 'on one's back'
 Na-Dene: Haida sku 'back' (SwH 271)
 N: Bouda (BK 35) and Ćirikba (BNC 49) compare Basque and NC.
40. ARMPIT **got-:-
 North Caucasian: NC *qōfV 'brisket (breast of animal)' (NC 18)
 Burushaski: -qat~ -Aqat 'side of body, armpit'
 Na-Dene: Haida s-got 'armpit'; Tlingit Xet 'chest, breast';
 Navaho ʔa-yid 'chest' (SwH 271; P 65)

41. SIDE **Gal-~gal-:
 Basque: gal-tzar(r)~gal-(tzar-be) 'armpit, side (of body), flank, bosom'
 North Caucasian: NC *ʔagwā^wā^wv 'side' (SC 1.25)
 Sino-Tibetan: ST *qālH 'back, cheek' (SC 1.25): TB *s-ga-l 'back, loins, groin'; Maring (nam)-gal, Garo (ʒaŋ)-gal 'back', Tib s-gal-pa 'small of the back' (STC p. 18)
 Yeniseian: Yen *hol- 'side (of body), cheek' (SC 1.25)
 N: Starostin (SC 1.25) compares NC, ST and Yen.
42. BREAST **mam-:
 Basque: mama 'breast', also 'mother' (otherwise ama); mama-tu 'to suck, suckle'
 North Caucasian: *māmV '(female) breast'
 Burushaski: -maam-ūt '(female) breast, nipple (male or female), teat'; cf. mamu~mamu 'milk'; mama~maama 'mother, maternal aunt'
 N: Since this ancient root is so widespread (Lat mamma, etc.), and so uniform phonetically, it is of no value as a diagnostic of Sino-Caucasian, but is given as a shared etymology representing the oldest layers of the lexicon.
43. BODY/FLESH **CunH-:
 Basque: soin~soĩñ~sūn 'upper body, bust', soin-ez 'bodily'
 North Caucasian: NC *č̣nHV 'game, animal' (NC 4)
 Sumerian: su 'flesh, body' ~ u-zu id.
 Burushaski: -šan 'limbs, all the parts of the body'
 Sino-Tibetan: Karen šan 'flesh, meat, deer', Kanauri śya 'flesh, meat, game', Magari mi-sia 'flesh, meat', Burmese sa~a-sa 'flesh', sa 'beast', OChin *śjēn 'body' (STC 181 and p. 158)
 Na-Dene: Eyak -ce?; Ath *-cən?: Minto -təenz, Chipewyan -təən, Navaho -cī? 'flesh' (K 38); Tlingit cin~cīn 'alive, strong', yA-cīn 'to be alive', li-cīn 'strong', la-cīn 'strength, power'; Haida (ʔaa)-xi 'strong' (P 175)
 N: The Sumerian form may be accounted for as follows:
 cunH->cūH->**cuu-; for typology of change, cf. Gmc *fapx- 'catch, seize'>*fāh->OEEng fō-, OIcel fā; and possible parallels in nos. 55, 126, 137.
44. FLESH **rVk'-:
 Basque: ha-ragi~a-ragi 'flesh, meat'
 North Caucasian: NC *rūk^kḳⁱ 'meat, flesh': Archi ak^x, Andi riḳⁱ, Lezgi jak, Tabasaran jakk, Lak dik^x, Khinalug lekka, Circassian le id. (NC 21, BNC 76)
 Sino-Tibetan: TB *ryak 'grease, oil, juice'; Lushei sa-hriak 'oil, juice'; Tib zag 'fat, grease (in a liquid state)'; OChin *zjak 'fluid, moisture' (STC 204 and p. 172)
 N: Čirikba (BNC 76) connects Basque and NC. For the semantic relation of 'flesh' and 'grease', cf. OSwed fläsk 'meat, flesh, fat flesh, grease'.

45. BLOOD₁ **mult-:
 Sumerian: mud 'blood'
 Burushaski: mUlt-An 'blood'
46. BLOOD₂ **č'VL-~**č'VL?-:
 North Caucasian: NEC *č'ä₃wV 'blood' (SC 7)
 Yeniseian: Yen *sur 'blood' (SC 7)
 Na-Dene: Ath: Mattole -ceel-in, Hupa ceel-iy, Kato seel-in
 'blood' (Hoijs 1956: 223-224)
 N: Starostin (SC 7) connects NC and Yen.
47. BLOOD₃ **dVL-:
 Basque: o-dol 'blood'
 Burushaski: del 'oil; contents of an egg'; lel-iitu~lal-iitu
 'blood-stained' (cf. Shina lel 'blood')
 Na-Dene: Ath *del 'blood': Beaver däl, Carrier del-el, Chip-
 ewyan del, Hare e-dele, Kutchin da, Galice däl, Navaho,
 Chiricahua, Jicarilla, Lipan dil 'blood' (Hoijs 1956)
 N: Trombetti (1926: postilla to p. 139) compares Basque
 and ND. Bur del has probably been influenced by Indic (cf.
 Hindi tel 'oil'); lel may be influenced by, or derived
 from, Indic (cf. Skt lohita-, Romani lolo 'blood').
48. HEART **h₁OC-:
 Basque: bi-hotz 'heart; love, courage' etc.; bi-hoz-ti 'affec-
 tionate'
 Sumerian: us 'blood; love, mercy, understanding' etc.
 Burushaski: -as 'heart, mind', -as-ki 'remembrance, longing,
 desire'
 N: Basque bi- is presumably the same prefix as in nos. 8,
 13, 31, 39, etc. (see 'Notes on Sino-Caucasian Prefixes').
49. KIDNEY₁ **q'VL-:
 Basque: gul~gil-(tzurrin) 'kidney'
 North Caucasian: (NC *q'w₅l-(V)q'wV 'egg, seed, grain' NC 20)
 Sino-Tibetan: TB *m-kal, Tib m-khal-ma, Lushei kal 'kidney(s)'
 (IST 47; STC 12)
 N: Similar forms for 'egg' are widespread, e.g. NS: Fur
kilo, Berta (ho)-holo 'egg'; Korean kel-an id.; AA *k₁w₁
 'egg, testicle'; Ur *kōle 'testicle' (Illič-Svityč 1967:
 373); Nahali kāl-en 'egg', etc. (Trombetti 1926: 123)
50. KIDNEY₂ **bVr~/bVL-:
 Basque: barrabil 'testicle'
 Sumerian: bir 'kidney'
 Yeniseian: Yen *bajbVL 'kidney': Ket bajbul, Yug bajbäl, Kot
koipala (<*poipala) id. (Yen p. 171)
 N: For remote connections, cf. NK: Bantu *bolo 'penis';
 IE *b^hallo- (Gk phallos, Eng, Swed ball).
51. KIDNEY/EGG **rULč-:
 Basque: a-raultze~a-rraultze 'egg'
 Burushaski: i-rič 'kidney'
 N: In both languages we find here the petrified prefix or
 article that recurs sporadically in many SC languages. Cf.
 nos. 12 (NC *He-c'w₅mV), 20 (ND *ʔaʔ-qa, Basque a-ho), 26
 (Basque e-rhi, Mikir e-ri), 28 (NC *Ho-lokV, Akha a-laʔ),
 32 (Basque he-gal), 33 (Basque a-tal), 44 (Basque ha-ragi),
 etc.

52. TESTICLE **čo(r)H:-

Burushaski: čoofo 'testicle' = čoofo

Na-Dene: Ath *-čoy?: Chipewyan -coy 'to be round', Mattole -čog^w 'testicles', Navaho -čog?, -čog- 'genitals, testicles' (Hoijer 1938: 83)

53. NAVEL **CVH:-

Burushaski: -suui 'umbilical cord, navel'

Sino-Tibetan: OChin *zaj 'navel' (Yen 106); TB *s-tay: Tib lte-ba, Kachin dai~šadai 'navel', Garo ste 'abdomen' (STC 299)

Na-Dene: Eyak c'aa 'umbilical cord'; Ath: Mattole -c'ee? 'navel', Tutchone c'e?, Navaho -cee? id.; (with diminutive suffix:) Sarsi -c'a-k'ə?, Hupa -c'ee-q' 'navel' (P 61)

N: The Sino-Caucasian words for 'navel' are difficult to sort out: note the etymologies proposed by Bouda (1957: p. 85, no. 63), Tailleux (1958: p. 425, no. 20), and Starostin (Yen 106), all of which, taken together, probably involve two or three distinct roots.

54. INTESTINE **Perk?-:

Basque: (h)ertze~(h)erxe = /erše/ 'intestine'

North Caucasian: NC *Hō-wērK'k'V~pērK'k'V~bērK'k'V 'large intestine' (NC 25): Akhvakh baK'i, Andi boK'i, Avar baK', Hunzib baka, Archi babK'^w 'intestine'; Chechen bačara 'intestine, sausage' (Yen 3)

Sumerian: peš~li-biš 'heart, bowel, womb'

Burushaski: wark 'fat on the big intestine of animals; a kind of sausage'

Sino-Tibetan: ST *Pik 'intestines' (SC 1.9): Mikir phek, Garo bibik, Dimas bubu 'bowels' (STC p. 21, 80)

Yeniseian: Yen *pi?al 'intestine': Ket hi:l, Yug fā:l id., Arin phorga 'abdomen' (Yen 3)

Na-Dene: ND *-wad?: Tlingit ka-wUH~yu-wu 'stomach'; Eyak kU-ma? 'belly', wat'~wut' 'vomit'; Ath *-wad? 'belly': Minto -bed, Chipewyan -ber, Tena -vwAd, Hupa -mit, Mattole -bi?i, Wailaki -bit, Navaho -bid id. (P 102)

N: Starostin (SC 1.9) compares NC, ST and Yen. Note the 'satem'-like palatalization of the final root consonant in Basque, NC, and Sum. For possible remote connections, cf. IE *perk^w- 'body, life'; Ur *perk- 'intestine'; Drav *perk- id.; Ojap fara 'belly'; Austronesian *bičuka 'bowels', etc.

55. SINEW/VEIN **eeNH:-

Basque: zain~zaiñ~zein 'vein, nerve, root'

North Caucasian: NC *SēmHIV 'sinew, muscle, intestine' (NC 22)

Sumerian: sa 'sinew, rope' (? < **sāh-)

Sino-Tibetan: TB *r-sa 'vein, sinew, root': Tib rtsa-ba 'vein, root', Kachin lə-sa 'tendon, sinew, vein', Ao Naga te-za 'vein' (STC 442)

N: If the Sum and ST forms belong here, we must assume attenuation of the root nasal (vowel nasalization, then denasalization; see the note to no. 43). For wider connections, cf. IE *sneHw- 'sinew, vein; to sew', Ur *sōne 'sinew, vein', Alt *sūnV- 'to stretch out'; AA: Angae *sin 'root' (Illič-Svityč 1967: 341; Blažek 1989a).

56. BONE/LEG **č'ām-:
 Basque: zan-kho ~ zan-go 'leg, foot' (-kho ~ -go diminutive);
zaman-got 'thighbone'; zan-gar(r) 'leg, calf, paw,
 shin-bone'
 North Caucasian: NC *Hě-c'c'wēmV 'bone of the leg, shin, ankle'
 (NC 29)
 Burushaski: -ltan-c 'the whole leg (of man or animal)'; -ltin ~
 tin ~ tiin 'bone'; (min-A)-ltin 'pelvis, hip'
 Na-Dene: Eyak c'al, Yakutat cali 'bone'; Ath *c'en, *c'en-ə?:
 Minto tō'en, Chipewyan tō'en, Sarsi -c'in-ə?, Hupa
 -c'in?, Kaska c'An-a?, Navaho c'in 'bone' (K 39; P 34)
 N: Nikolaev (DC) compares NC *yě-c'c'wēmV 'leg, bone' and
 ND *c'em(?) id. (I do not understand the reconstruction of
 ND *m.) For the correspondence of Basque z- : NC *c'- :
 Bur -lt- : ND *c'-, cf. no. 12.
57. BONE₁ **kuč-:
 Sino-Tibetan: ST *kut 'bone' (SC 1.12): OChin *kwet 'bone'
 (STC p. 155)
 Na-Dene: Haida s-kuuχ-I bone' (SwH 259)
 N: For possible remote connections, see GlobEt 8.
58. BONE₂ **c'aq-:
 Basque: -zaki 'bone' (lepho-zaki 'neckbone, nape')
 Na-Dene: Tlingit s'aq 'bone' (P 34)
 N: Cf. Amerind **čaki 'bone, hard' (Am 47).
59. KNEE **duH-:
 Sumerian: dūg ~ du ~ du, 'knee'
 Burushaski: -dU-mUš ~ -dU-mUc ~ (Nagir) -duu-mus 'knee, hock'
 Sino-Tibetan: TB *du- Burmese du 'knee', Miri (lag)-du
 'elbow' (STC p. 21)
60. ELBOW **c'uš-:
 Burushaski: -suus-Un ~ -ses-en 'elbow'
 Na-Dene: Eyak -č'ic'; Ath *-č'əs?: Minto -c'es, Ingalik
 -c'ez, Kutchin -c'ow?, Han -c'a, Tsetsaut -ce?,
 Chipewyan -c'uz, Navaho -č'oož, Mattole -č'As
 'elbow' (K 10)
61. SHOULDER/NECK **p^hujN-:
 Burushaski: -pfocin 'shoulder' (cf. Shina pyōō-lo 'shoulder,
 shoulder-blade')
 Yeniseian: Yen *pujm- Kot p^huim-ur ~ fuim-ur, Arin pem-ä
 'neck' (Yen p. 172)
- B. Nature and the elements:
62. FIRE₁ **gun-:
 Sumerian: gunni 'hearth, brazier'
 Sino-Tibetan: ST *kun: Sunwar kun, Newari kin 'smoke';
 OChin *Xjwən 'to smoke' (intr.) (STC p. 159)
 Na-Dene: Eyak -qu? (prefix) 'fire'; Ath *kwUn?: Minto
 kUn?, Chipewyan kun, Beaver kon?, Hupa xon?, Galice
 k^wan?, Navaho kō? 'fire' (K 56, P 55)
 N: Shafer (RS 14.2) compares ST and ND. Tlingit X'an 'fire'
 belongs rather with Ath *-k'an? 'to burn', and ST *ka.ŋ
 'to burn, roast' (RS 13.2).

63. FIRE₂ **tap-:
 Sumerian: tab 'to burn, to blaze'
 Sino-Tibetan: TB *tap 'fireplace': Tib t^hab, Kachin dap,
 Lushei tap, Bodo ga-dap, Garo cu-dap (IST 48, STC 18)
 N: For possible remote connections, cf. IE *tep- 'to burn,
 be hot', Kartv *t^hep- 'warm', AA *tap-/*tap- 'to burn, be
 hot' (AB 81); Amerind: **tapi 'to burn' (Eq 23).
64. FIRE₃ **phu-:
 Burushaski: phu~pfu 'fire'
 Sino-Tibetan: Tsangla phi, Hruso phi 'to set fire to' (IST 171);
 ST *phwā-r 'fire': OChin *Xwā-r, Chairel pha-l, Moshang
va-r 'fire' (STC 220)
 N: ST *phwār, probably a suffixed form, later became con-
 taminated with *par~bar 'to burn' (STC 220). For possible
 remote connections cf. NK: Bantu *pi-a 'to burn'; IE *paX-
 (wōr) (Kaiser 1988) or *p^heh₂-ur (AB 40) 'fire'; Drav *puw-
 'spark'; Ur *piwe 'warm, hot'; AA *piq^w 'fire'; Alt *p^hebV
 'to burn'; Kartv *pxw- 'warm' (Illič-Svityč 1967: 352; AB
 40; Blažek 1989b: 102); Indo-Pacific: Tasmanian *peū-na
 'warm'; Amerind *pⁱXwV 'fire, to burn' (Hokan 27, CA 36;
 VS 74)
65. FIRE₄ **c'Vja-:
 Basque: su 'fire, hearth'
 North Caucasian: NC *c'ājā 'fire' (NC 2): Avar c'a, Lak c'u,
 Archi oc, Bats, Chechen c'e, Ingush c'i 'fire' (L 35)
 Sumerian: i-zi 'fire, heat', i-i-zi~na-i-zi 'smoke'
 Burushaski: -ce~ci-Acii-As 'to set fire to, burn' (trans.)
 Sino-Tibetan: TB *ca 'hot, sore'; Tib cha 'hot, illness', Mikir
so 'hot, excessive; to be ill, sore', Lushei sa~sa-t
 'hot' (STC 62)
 Na-Dene: Haida č'aa?-ano 'fire, firewood' (SWH 270, 272);
 Tlingit s'e-q~s'i-q 'smoke, to smoke'; Ath: Chipew-
 yan tə'a-y 'there is smoke, to be smoky', -tə'e 'to
 become smoky, smoke moves' etc. (P 226)
 N: Trombetti (T 305) and Čirikba (BNC 85) compare Basque
 and NC. For possible remote connections, cf. Kartv *cⁱw-
 'to burn', AA *św- 'to burn, scorch' (Illič-Svityč 1967:
 341).
66. SUN **śah-:
 Burushaski: śā 'sun, daytime, day' (also recorded as śah)
 Na-Dene: ND **śwāH-: Eyak x^wah 'summer', (qal)-x^wā?-i 'spring';
 Ath *ś^wa 'sun/moon': Beaver śah~śah, Carrier śa,
 Hupa Waa (= h^waa) id., Minto śro, Hare śaf, Tsetsaut
 -f^wa, Umpqua śaa, (archaic) Navaho śa 'sun', etc.;
 Haida xai 'sunshine', xaa-ya 'sunlight' (K 15, P 287)
 N: For the regular correspondence of: NC *ś- : Bur s/ś-
 : ST *s/ś- : Yen *s- : ND *ś/ś^w-, see nos. 126, 128.
67. SUN/DAY₁ **jakh-:
 Basque: ekhi 'sun'
 Na-Dene: Tlingit yAkyi 'day, afternoon'; Yakutat yakha 'day'
 (P 86)

68. SUN/DAY **Hig-(N):

Basque: igu-zki 'sun, day', egu- 'day' (egu-erdi 'midday', Egu-berri 'Christmas', lit. 'new day'); cf. egun~egur 'day'

Sumerian: ug 'sun, heat, light, day'

North Caucasian: NC *ʔwīgīgī-nV 'day' (NC 34)

Yeniseian: Yen *xiGa 'sun', *xi(ʔ)G 'day': Ket ī 'sun', iʔ 'day', Kot ega 'sun', ig~ix 'day', Pumpokol hix-em 'sun', ha 'day' (Yen p. 163, 167)

Na-Dene: ?Tlingit Xagan~Xakan~Gagan~agan~gan 'sun' (P 287)

N: There has possibly occurred contamination of the forms in this etymology, with those of nos. 67 and 69.

69. DAY, **Gun~Gwen:-

Basque: e-gun 'day, daylight'

North Caucasian: NC *Gwēm-tV 'day, 24 hours' (NC 6); cf.

NC *ʔwīgīgīnV (above, no. 68; depending on analysis, see note to no. 51.)

Sumerian: gun 'bright'; cf. kun '(be) bright, shine'

Burushaski: goon~gun 'dawn', gun-c ~guun-c 'day'

Sino-Tibetan: OChin *kʷan 'light' (Starostin, cited by Blažek 1989a)

Yeniseian: Yen *gəʔn 'bright, light': Ket, Yug kaʔn 'bright' (Yen 52)

Na-Dene: Eyak gah 'day', geel-(a-ʔaaʃ) 'noon'; Ath *Gwen- 'day': Minto dran, Chipewyan ʒī, Navaho ʒī, Mattole ʒin 'day'; Tlingit gan~agan 'sun' (K 4; P 287)

N: Trombetti (T 140) compares Basque and NS, NC, Turkic. Blažek (1989a) compares Yen, OChin, Sum, and Nost *kuni 'light' (IE + Ur + Tkic).

70. DAY, **daG:-

North Caucasian: NWC *taya 'sun': Ubykh dya, Adygh ttəye, Kabardian dəye 'sun', Agul jay 'day' (L 66)

Sumerian: dag 'bright, shining', dadaga id.

Burushaski: (Werchikwar) doy-ooi ~ (Hunza) dūy-uui 'midday'

Sino-Tibetan: Tib g-dag-s 'the light, day' (Eur I: 41)

Na-Dene: Haida daaG-aɬ 'tomorrow' (probably lit. 'with daylight', Haida aɬ 'with') (SwH 272)

N: Shafer (Eur I: 41) compares ST and IE *dhagwh- 'day, summer'; Lafon (L 66, no. 28) compares NC and Kartv (*deG~daG- 'day'); cf. AA: Semitic *deG-/daG- 'early morning' (AB 73); Amerind *dogi 'sun' (Am 251)

71. NIGHT **rjvk:-

Basque: a-rrats~a-rratx = /arrač/ 'night, evening'

North Caucasian: NC *HWī-rinkkī 'night, evening, yestereve' (NC 9)

Sino-Tibetan: TB *ryak: Burmese rak, Tib ʒag, Lepcha ʔa-yak, Manchatl rag~hrag 'day and night (24 hours)'; OChin *s-rjōk 'to pass the night', Lushei riak id., Vayu yōk-sā 'night', Bahing (nam)-rikko 'to be dark' (STC 203; Eur I: 20)

N: Shafer (Eur I: 20) compares ST and IE *regW-os- 'darkness' etc. For the palatal *k in NC and Basque, cf. no. 54.

72. MOON **hila:-
 Basque: hil ~ hila 'moon, month', hil-(argi) 'moon, moonlight',
hila-(bethe) 'full moon, month' (varies greatly with
 different dialects) ~ il ~ ila, etc.
 Burushaski: hal-Anc ~ hal-Ans ~ hal-Anz 'moon'
 Sino-Tibetan: TB *s-gla 'moon': Burmese la, Tib zla-ba, Ahi
klo-, Digaro hlo ~ hela, Lolo *hla, Karen *hla,
 Taying hālā 'moon' (IST 177, 218; STC 144; Eur II: 37)
 N: Trombetti (T 164) compares Basque with NK: Bantu and
 Fula (**Heli 'moon, star'), and AA (Arabic hil-āl 'new
 moon', etc.), and (T p. 21) notes remote connections to
 ST and Amerind. Shafer (Eur II: 37) compares ST *zla ~
 *zla 'moon' with IE *swel- (Gk sel-ēnē 'moon'). cf.
 Nost *helv 'bright' (Shevoroshkin and Kaiser 1985: 10).
 Nost *hal-/hel- 'to shine, be bright' (AB 376); Amerind
 **Hali 'sun' (Am 248; cf. Yana hala, Chimariko ʔalla 'moon')
73. STAR₁ **cʷarH:-
 Basque: i-zar(r) 'star'
 North Caucasian: NC *Hā-z̥z̥wār̥q̥i 'star' (NC 27): Abkhaz -jacʷa,
 Adyghe zʷarʷa, Agul cʷcʷara, Akhvakh cʷcʷari, Avar
cʷcʷa, Karata cʷcʷaj, Chamalal, Botlikh cʷcʷaj
 'star' (BNC 84)
 Sumerian: ud-sar ~ u-sar 'new moon'
 Burushaski: lA-čhaar 'morning star' (Venus) cf. Shina (looi-)
 lA-čaar 'the morning star'
 Sino-Tibetan: TB *cyar = *car 'sun; to shine': Gurung sara,
 Thakya sar 'star'; Thami cala 'moon'; Moshang šar,
 Garo, Chairel sal, Namsang san, Kachin šan 'sun';
 Bahing cyar 'to shine' (IST 125, 128; STC 187)
 N: Čirikba (BNC 84) compares Basque and NC. Trombetti
 (T 337) compares Basque izarr with NC (Tindi caru, etc.),
 ST (Tangkhu sira 'star'), Amerind (Opatoro siri id.),
 and AA (Berber a-tar, i-θri 'star'). Blažek (1989a) com-
 pares a different AA root: *zuhar-/zihar 'star, moon-
 (light)' (Sem + Berb + Chad); Amerind also: Shasta cʷuwar,
 Achomawi cul 'sun' (Hokan 141)
74. STAR₂ **cuNH:-
 Burushaski: (Werchikwar) a-sum-Un ~ (Hunza) A-si 'star'
 Sino-Tibetan: Hruso li-con, Yatshumi cinhī, OChin *sen 'star'
 (IST 177; SC 54)
 Na-Dene: Ath *sUn? ~ cUn? 'star': Minto sen?, Chipewyan teən,
 Navaho sō?, Mattole cin?, Koyukon tlUn? = hUn? 'star'
 (K 57); cf. Haida siŋ 'day, sky' (SwH 271)
 For possible remote connections, cf. Amerind **(a)sin
 'star' (Am 243).
75. EARTH₁ **māl:-
 North Caucasian: NC *māl-z̥z̥V 'earth, place' (NC 14)
 Sumerian: ma ~ ma-da 'land'
 Burushaski: (Werchikwar) māl ~ māl ~ (Hunza) māl 'field'
 Sino-Tibetan: TB *mley: Mikir mili ~ meli 'sand bank, bare
 ground'; Kupome mlai, Burmese mre, Tavoyan mle
 'earth'; OChin nier 'mud, mire' (IST 307, STC 152)
 N: For (apparent) loss of -l- in Sum, cf. no. 1 TONGUE₁.

76. EARTH₂ **T/i/K:-
 Burushaski: tlik~tik 'earth, ground, rust'; cf. tōq 'mud'
 Sino-Tibetan: Lushei diak 'mud', Sho dhek~dek 'earth'
 (IST 221)
 Yeniseian: Yen *təq- 'clay, dirt': Ket tag-ar 'clay', Kot
thag-ar 'dirt', thag-an~thak-an 'sand' (Yen p. 165)
 Na-Dene: Haida ālgaa 'land'; Tlingit h'Atk 'land earth',
h'AX'k^w~h'exk^w 'soil'; Eyak xa-āak-āaka 'Landzunge/
 spit of land'; Sarsi gu-h'is 'earth', Navaho -h'aah
 'bottom' (P 284)
 N: Shevoroshkin (VS 90) compares Yen *thVq- with Nost
*diqV 'earth' (IE *dh^gh-em- + Kartv *diga 'soil, clay'),
 and Amerind *t'iqV 'dirty'. Bouda (1950: no. 161) com-
 pares Kartv and ST (Tib q-dag 'loam'). For the initial
*h in ND, cf. 25 FINGER₂.
77. DUST₁ **Xurt- (? **XurC-):
 Basque: hauts~haus 'dust, ashes'
 North Caucasian: NC *XurtV~XwərtV 'foam, scum' (NC 27)
 Burushaski: xUrc~xuorc (Nagir) qUrc 'dust'
78. DUST₂ **p^hvt-:
 North Caucasian: NC *pweṭV 'excrements, dirt' (NC 17)
 Burushaski: pfet-iṭ 'ashes'
 Sino-Tibetan: Kukish *phut 'dust', Lushei phut 'powder, dust',
Middle Burmese p^hut 'dust lying on the ground'
 (IST 46)
 N: Cf. Amerind *pot 'ashes' (Pen 10).
79. STONE₁ **qorq-:
 North Caucasian: NC *qōrṭV 'stone' (NC 19)
 Burushaski: (Nagir) qooq-ur 'stones (on a mountainside, about
 to fall)'
 Na-Dene: Haida q^hooya = qooya 'rock' (Sapir 1921: 151)
 N: For the loss of **r- (+ cons.) in various languages,
 cf. above, nos. 8, 30, 54, 77.
80. STONE₂ **cV-:
 Basque: ha-itz~a-itz 'rock / roca / Fels'
 Sumerian: zā~zé 'stone / Stein'
 Yeniseian: Yen *či?-s 'stone': Ket ti?-ś, Yug či?-s, Kot ši-ś,
 Arin ke-s, Pumpokol ki-t, Assan ši-ś id. (Yen p. 157)
 Na-Dene: Tlingit ṭič 'rock, stone, pebble'; Eyak caa 'stone';
 Ath *ce 'stone': Minto təa-, Chipewyan təe, Navaho
ce, Sarsi ca, Mattole cee, Chasta Costa se, Kutchin
kii (K 24, P 180)
 N: The Basque and Tlingit forms should probably form a
 separate etymology (SC *ṭič-). Note the unusual change
 of *c/č- > (*t-) > k- in Yen (Arin, Pumpokol) and ND (Kut-
 chin).
81. VALLEY **bar-:
 Basque: i-bar(r) 'valley'
 Sumerian: bar, gu-bar-ra 'open field, wilderness'
 Burushaski: bar 'nullah, ravine, valley'
 N: Trombetti (T 46) compares Basque and Sum, also NK:
 Bantu *-bala 'open place', and AA: Hebrew bar 'open field',
 etc.

82. WATER₁ **thuj-:

Basque: i-thoi ~ i-toi 'a drop'; thu- 'to spit'; i-thoi-tz 'roof gutter'; i-thu-rri 'spring, fountain'

North Caucasian: NC *tujuV 'spittle, to spit' (NC 23);
Abkhaz twa- 'to run (liquid), to pour, to sweat' (L 83)

Sumerian: tù 'to pour out, to libate'

Burushaski: thi-š 'a drop'; thi- 'to pour'; thuu- 'to spit'

Sino-Tibetan: TB *twiy 'water, to flow'; Nung thi, Kanauri, Manchat, Vayu ti 'water'; Kanauri thi-sk 'wet', thu- 'to spit'; OChin *th_u~*th_o 'spittle', *th_ij 'tears, to weep'; Burmese twe 'to flow', thwe 'to spit', etc. (IST 45, 132; STC 55, 167, 168; Baxter 1985: 251)

Na-Dene: Ath *tu = *th_u 'water': Minto tu, Chipewyan tu, Beaver tuu, Kato too, Mattole -txo?, Navaho, Chiricahua, Sarsi to, Jicarilla, Lipan ko (K 19; RS 6.1)

N: Shafer (RS 6.1) compares ST and ND. Trombetti (T 316) compares Basque, ST, and ND; also Khoisan (**tu- 'to rain'), and IE (Skt toya- 'water', Eng thaw).

83. WATER₂ **cil- = **chil-:

Burushaski: chil ~ (Werchikwar) chel 'water'

Sino-Tibetan: TB *(m)-syil ~ *(m)-syal: Tib b-sil, Lushei sil, Newari sil- 'to wash'; cf. TB *m-cril 'spittle': Tib m-chil-ma, Lushei čil id.; Tib zil-pa, Hruso šil-(60) 'dew' (IST 174; STC 231, 493; RS 16.3)

Na-Dene: Chipewyan -cil, -cel 'to soak, wash', Sarsi -cil- 'to wash' (RS 16.3)

N: Shafer (RS 16.3) compares ST and ND.

84. WATER₃ **xün? ~ **xün-C:

Basque: i-hin-tz ~ i-hi-tz 'dew'

North Caucasian: NC *xün? 'water' (NC 26): Avar xin, Andi xen, Tindi xe, Godoberi xeni, Hunzib xi, Lak šin, Tabasaran šid, Tsakhur xan, Chechen, Ingush xi 'water' (Yen 61); Lak x^win, Chechen t-xi, Udi xo 'dew' (BK 97)

Burushaski: huu-š 'wetness (of ground), moisture'

Sino-Tibetan: ST *hu-s 'moisture' (SC 64): Chepang hu-s 'dew', Tib hu-s 'moisture', Lushei hu? 'wet', Hruso xu, OChin *xuj? 'water' (IST 41, 176; STC p. 2, 17; Yen 61)

Yeniseian: Yen *xur₁ 'water': Ket ül, Yug ur, Kot ül, Arin kul, Pumpokol ul id. (Yen 61)

Na-Dene: Tlingit hin 'fresh water, river'; Ath *xan?e 'river': Kutchin han, Hupa han?, Tutchone xan?e, Galice kandee, Kwahioqua xonee id.; Haida Gan-dl ~ Gan-l 'fresh water' (p 169)

N: Bouda (BK 97) connects Basque and NC. Starostin (Yen 61 and SC 64) connects NC, ST, and Yen. Nikolaev (DC) connects NC and ND. For possible remote connections, cf. IE *yaun-/ywan-/yun- 'wave, flood', Kartv *ywen-t- 'to drip', Tungus *ün- 'river', Japanese ina 'water, moisture', Drav *uñi 'to soak' (Kaiser & Shevoroshkin 1985: 34 postulate Most *GuñV 'moisture; to flow'); Amerind **huñi 'water' (Eq 123; Maidun *hin 'to float', Panoan *hñi 'water', etc.).

85. RAIN **yur-:

- Basque: hur~ur 'water'; e-uri 'rain'; hur-alde 'flood'; hur-
(xuri) 'urine'; hur-(egin) 'to sweat'
North Caucasian: NC *wer-tv 'rain' (NC 22) = *ywer-tv (SC 43)
cf. Hatti ura 'spring (of water)'; NakhDag *hwire
'river, lake' (BNC 83)
Burushaski: hər-(aalt) 'rain'; hər-lāš 'urine'; hur-(ooyo)~
(Naglr) hor-ogo 'sweat'; huur~hūr 'conduit for
water'; hūr-(iginas) 'stream, current, wave'
Yeniseian: Yen *xur 'rain': Ket uī-eš, Yug ur-es, Kot ur,
Arin kur, Pumpokol ur-ait 'rain'; cf. Ket ul-an,
Kot ur-an, Arin kur-lo 'dew' (Yen p. 149)
N: Trombetti (T 323) compares Basque with NS, IE, and
Yen. Ćirikba (BNC 83) compares Basque and NC. Starostin
(SC 43) compares NC and Yen. Cf. also: IE *yaur~*ywar-
'water, river, rain'; AA *ywr 'get wet'; Kartv *ywar- 'to
flow, pour, get wet'; Alt *ūru- 'to flow'; Drav *ūru- 'to
flow' (N 98; Kaiser & Shevoroshkin 1985: 32); Austric:
Austronesian *wahəR 'water'.

86. FROST **čig-(Vr-):

- Basque: in-tzig-ar 'frost'
North Caucasian: NC *čhowq̄hIV 'sleet, hoarfrost': Avar čig
'drizzle, sleet', Lak čalwqa 'heavy shower', Adygħ
sax 'hoarfrost', Abaza səXa 'new snow' (Yen 87)
Sumerian: še 'cold, frost', šəg 'rain, to rain'
Burushaski: čhay-(uurUm) 'cold' (adj)
Sino-Tibetan: Garo -čik, Lushei šik, Kachin -si 'cold' (IST 52)
Yeniseian: Yen *caG: Kot sāk 'icy crust on snow' (Yen 87)

C. Fauna:

87. DOG **xwv-(r):

- Basque: hor~or~xor (Souletin dialect) 'dog'
North Caucasian: NC *xwēIje 'dog' (NC 27): AbAd *xwa id.;
Avar hoe, Andi Xoj, Botlix Xwaj, Dargwa Xwi, Agul
Xuj, Tabasaran XXoj, Tsakhur Xoa, Udi ha~Xa 'dog';
NakhDag *xwar 'dog' (BNC 72a; L 46)
Sumerian: ur 'dog' (< *Xur ?)
Na-Dene: Haida xa~Xaa 'dog' (SwH 273; Sapir 1921: 148)
N: Trombetti (T 168) compares Basque and NC, also forms
from ST and AA (Coptic u-hō-r 'dog'). Ćirikba (BNC 72a)
compares Basque and NC. Starostin (SC 11) compares NC
*xwēIje 'dog' and ST *qhwiIj id. (It is not clear whether
all the NC forms above belong to one root.) Cf. Amerind:
**haju 'dog' (MTuc 29).

88. DOG/WOLF **gal:-

- North Caucasian: NC *k̄wāčē 'bitch, dog' (NC 11) = NC *ḡwāžē
'dog, wolf' (DC)
Burushaski: gaal~kaal 'a species of wild dog'
Na-Dene: Haida Goč 'wolf', (naa)-Gaže 'fox'; Tlingit Goč
'wolf', na-Gas'e 'fox'; Eyak gooči 'wolf', na-
qecae na?-qac~aeae 'fox'; San Carlos guse 'dog',
Chiricahua kežaa 'dog' (P 111, 112)
N: Nikolaev (DC) compares NC and ND. Pinnow (P 111) notes
resemblance of Amerind forms (Tepecano gogoc 'dog', etc.).

89. PREDATOR **PVRc'-:

Basque: otso 'wolf' ~ (Souletin) potzo 'wolf, big dog' (BNC 72)
 North Caucasian: NC *Hē-bērc'ī 'wolf' (NC 1) = NC *bēHērcī id.
 (SC 3.13): Avar bac', Lak barc', Chechen borz, Bats
bqōrc', Dargwa bic' 'wolf'; Abaza bagaza, Bzyb a-bgəz
'jackal' (BK 59; BNC 72) Hattic ha-prasš 'leopard'
 (BNC 72)

Sino-Tibetan: OChin *prāt-s 'mythical predator' (SC 3.13)

Yeniseian: Yen *pes-tap 'wolverine': Kot pheš-tap ~ feš-tap,
 Arin phjas-tap, Assan pes-tap id. (Yen p. 172)

N: Bouda (BK 59) and Čirikba (BNC 72) compare Basque and
 NC. Trombetti (T 268) compares Basque and NC, also AA
 (Coptic bōnš ~ wōnš 'wolf') and NS (Barea wos ~ wās 'dog').
 Starostin (SC 3.13) compares NC, ST, and Yen.

90. BEAR₁ **XWarc-:

Basque: hartz 'bear'

North Caucasian: Dag *XI^wvrc'v 'squirrel, marten': Dargwa ħaīrc'
'squirrel', Agul ħūrc'-al 'marten, hamster'; Nakh
*Xešt: Chechen, Ingush Xešt 'otter' (Yen 101)

Sumerian: az 'bear' (notation of *ħac ?)

Yeniseian: Yen *Xas: Kot ħās 'badger' (Yen 101)

Na-Dene: Haida Xuuaʒi 'grizzly bear'; Tlingit Xuuc id.;
 Eyak li-xaʔ 'brown bear'; Ath *ħas ~ *ħwas:- Ingalik
sruḡ ~ (tabooed form) ḡuḡ 'black bear', Han srazr,
 Kutchin soh 'black bear'; Chipewyan sas, Hupa saac',
 Navaho, Chiricahua śaś, Nabesna śos, Tanana śes 'bear';
 Carrier śaθ, Tsetsaut xo 'grizzly bear' (SwH 274;
 SwTl 196; P 50)

N: Starostin (Yen 101) compares NC and Yen. Note that the
 'badger' (Yen) is closely related to the bear genus. Other
 meanings (in NC) are more divergent from the (apparently)
 original 'bear', but plausible in light of time depth and
 population movements.

91. BEAR₂ **cank^w-?:

North Caucasian: NC *c^wink^y(^w)± 'bear' (NC 1)

Na-Dene: Tlingit s'ik 'black bear'; Eyak c'iyuʔ ~ c'iyū,
 Yakutat ciuu 'black bear' (P 37)

N: ND glottalization in *c'- may be secondary (as assim-
 ilation to suffixed -ʔ, or the like): Krauss records
 Tlingit ciik 'black bear'.

92. SQUIRREL **carg^w-:

Basque: sagu ~ sabu 'rat, mouse'

North Caucasian: NC *c^warg^gWV 'weasel, marten' (NC 1): Avar
caḡ'u 'marten'; Andi sark'u, Tsakhur sok, Chechen
šatq'a 'weasel'; Adyghe cəR'a, Kabardian zəR'wa 'mouse';
 Abkhaz a-cəR ~ a-c'əR, Abaza c'əR 'marten' (Yen 73)

Burushaski: (Shina cərgēē 'woolly flying squirrel', presum-
 ably from Bur substratum: Lorimer 1935: III: 64)

Sino-Tibetan: ST *srāiŋ 'squirrel' (SC 3.1): OChin *srjen
 'weasel'; Burmese hrāŋ > hye 'squirrel' (STC p. 79)

Yeniseian: Yen *saʔqa 'squirrel': Ket saʔq, Yug saʔx ~ saʔq,
 Kot šaga, Arin sava, Pumpokol tak id. (Yen 73)

(cont. on next page)

- Na-Dene: ND *cAlk(?)-: Haida čolgi 'ground squirrel'; Tlingit cAlk ~ cAlk 'ground squirrel, gopher'; Eyak calk 'ground squirrel'; Ath *cəlxʔ: Minto təeley, Mattole calis 'squirrel', Carrier colq-es 'chipmunk' (SwH 274; K 69; P 26)
- N: Čirikba (BNC 71) compares Basque and NC. Starostin (Yen 73 and SC 3.1) compares NC, ST, and Yen. Trombetti (T 287) compares Basque with NC, also with AA (Ge'ez an-saw-ā 'mouse', etc.), Amerind (Maya cuk 'mouse'), etc.
93. SNAKE **cugʔV:
 Basque: suge ~ sube 'snake'
 North Caucasian: Lezg *č'ek': Tabasaran čič', Agul č'eḱ 'fish'; Kryts č'unk'-al 'lizard' (Yen 35)
 Yeniseian: Yen *cik: Ket ti:ya ~ tiy, Yug či:k 'snake'; Kot təg ~ tēx, Arin il-ti 'fish'; Pumpokol cič 'meat' (Yen 35)
 Na-Dene: Haida siiga 'snake' (SwH 272)
 N: Trombetti (T 308 and postilla) compares Basque with ND (Haida), also forms from NK (Bantu *-coka ~ -joka 'snake') and Ur. Starostin (Yen 35) compares NC and Yen.
94. LIZARD/WORM **χwɪl/ɪɪχʷ:-
 Basque: zizari ~ zizare 'worm', (dim.) xixari = /šišari/ ~ txitxari = /čičari/ 'small worm'
 North Caucasian: NC *χwɪtχwɪɪV 'lizard' (NC 26), *χVrčVɪV ~ χ'č-, -ɪ- 'lizard, snake' (NC 4)
 Sino-Tibetan: TB *zril 'worm': Tib sril ~ srin-bu '(silk)-worm', Thado til 'earthworm', Burmese ti id. (STC pp. 15-16)
 Na-Dene: Ath *χ'əxχʷ 'snake': Minto χ'eyesr, Navaho χ'iis, Mattole χ'iysis 'snake' (K 68)
 N: Trombetti (T 346) compares Basque with NC, Kartv (Laz cicila ~ sisila 'snake') and Ur (Finnish sisali-sko 'newt'). The unity of all the forms cited here is doubtful. Forms in Basque and NC seem to indicate consonant apophony; cf. apparent apophony above, NOSE nos. 21 and 22.
95. FROG **qʷVr ~ χʷVr:-
 Basque: i-gel ~ in-gel ~ i-hel ~ ne-gel ~ ne-gal 'frog'
 North Caucasian: NC *qʷqʷVrV-qʷqʷV 'frog' (NC 21): Avar qə'oir-qʷ, Khinalug qur-kor 'frog' (T 110)
 Burushaski: yUr-kUn ~ (Nagir) gUr-qUc 'frog'
 Yeniseian: Yen *xiʔr- 'frog': Ket əʔl, Yug əʔl, Arin kere id. (Yen p. 149)
 Na-Dene: ? Tlingit Xi-X-č 'frog' (SwTl 196)
 N: Trombetti (T 110) compares Basque with NC, also with AA (Kabyle am-gerger 'frog', etc.), NS, Kartv, and NK (Bantu *-kele 'frog'). Tailleux (1958: 425, no. 6) compares Basque and Yen. The Basque forms, from different dialects, suggest that the initial root consonant varied with different prefixes, or no prefix, in proto-Sino-Caucasian (see notes on prefixes, below). Suffixes in NC and Bur may be diminutive.

96. CRANE **quru?:-
 Basque: khur-lo 'crane'
 North Caucasian: NC *q'q'ɹɹi-(q'q'wV) 'crane' (NC 20)
 Burushaski: qeru-fo 'wading bird, heron'
 Sino-Tibetan: Tib khru-ŋ-khru-ŋ 'crane'
 N: Note the different suffixes in each language. For possible remote connections, cf. IE *ger(u)-n/w- 'crane' (Gk gera-nos, OHG chra-nu-h, Lit ger-v-ē, Lat grū-s, Arm kru-n-k, etc.); Ur *kur-ke, Drav *kur-/kor- id. etc. (N 159)
97. MOTH **phvr:-
 Basque: pin-pir-in ~ pin-pil-in 'butterfly' (reduplication and dissimilation)
 North Caucasian: NC *pōrV ~ *pōlv 'bee, butterfly' (cf. NC *purV 'to fly') (NC 17)
 Burushaski: phir-An ~ pfir-An 'spider; soul' ~ (Werchikwar) pfir-An 'moth; soul'
 Sino-Tibetan: Nung (khon)-phr 'moth', MidBurmese (lip)-pra 'butterfly' (IST 40; STC 398) cf. ST *phur 'to fly' (SC 17)
 N: Starostin (SC 17) compares NC *purV = *phurV 'to fly' and ST *phur id., which in turn have many widespread parallels (cf. GlobEt no. 21).
98. PARASITE₁ **ik:-
 Basque: zig-ar(r) 'mite / acaro / Milbe'
 North Caucasian: NC *č'wika ~ *č'ikwā 'flea' (NC 3): Chūrčila č'ikwa, Varkun č'ika, Dido č'iki, Lak č'aka, Chechen sag-al ~ seg-il id. (T 343)
 Burushaski: žiki 'nit' ~ (Werchikwar) žeke 'nit'
 Sino-Tibetan: TB *śrik 'louse': Tib śrik, Bunan śrig, Kanauri rik, Lepcha sak, Kachin ci?, Garo tik, Lushai hrik 'louse'; Hruso sūk-zū 'flea' (IST 172; STC 439)
 N: Trombetti (T 343) compares Basque and NC, also Kartv (Geor qg-ili, Mingr qg-iri 'flea'), and Austric (Ho sikū 'flea', etc.). Note the retroflex initials in both Bur (ž- ~ č-) and ST (*śr-). Cf. also: Ainu taiki 'flea'; Amerind **čuka 'flea' (CP 75).
99. PARASITE₂ **q'in?- (or **qin?-):
 Basque: a-kain 'tick / garrapata'
 North Caucasian: NC *q'q'in?V 'louse, nit' (NC 20)
 Burushaski: khiin 'flea' ~ (Werchikwar) kheen id.
100. PARASITE₃ **sVr- ~ **šVr:-
 Basque: zorri 'louse'; cf. zerr-en 'moth, grub, maggot'
 North Caucasian: NC *sVr-sV 'nit; germ (of an egg)' (NC 22)
 Sumerian: šar-in ~ šur-in 'a kind of insect, worm'
 Sino-Tibetan: TB *sar ~ *šar 'louse': Gyarung sar, Karen *sən, Burmese san, Maru šin, Ochin *sjěn (STC pp.15, 172)
 N: Cf. Japanese šir-ami 'louse'; Nost *šajrV 'nit', etc.
101. PARASITE₄ **t'Vm:-
 North Caucasian: NC *t'ān-HV 'nit'; cf. *t'ām-t'ō 'fly' (NC 24)
 Sino-Tibetan: Mikir tīm-(kraŋ) 'mosquito', či-tīm 'gnat, mosquito' (IST 277; STC p. 71)
 Na-Dene: Haida t'Am 'lice' (Sapir 1921: 148)

N: For possible remote connections, cf. Amerind ***Tvm-** 'louse' (Am 172, CP 118); Austric: Austronesian ***tuma** 'louse', Miao-Yao ***ta(m)** id.; Australian ***dim-** in 'nits'.

D. Flora, and its parts:

102. **TREE** ****Tvr-**:

North Caucasian: NC ***tāro** '(coniferous) tree' (NC 23)

Sumerian: **tir** 'forest / Wald'

Burushaski: **tooro** '(big) log'; cf. Shina **tooro** 'big log, stump' (< Bur substratum)

N: For possible remote connections, cf. NS ****Tvr-** 'stick'; IE ***derew-** 'tree, wood'; Austric: AN ***turu-s** 'post, stick'; Drav ***tūr-** 'bushes', AA ***dvr-** 'forest' (Blažek 1989b: 74).

103. **WOOD/TWIG** ****kic-**:

Sumerian: **gis** 'tree, wood'

Burushaski: **gāche ~ gāchi** 'twig, withe', **γāš-k** 'withe'

104. **LEAF** ****lap- ~ **x'ap- ~ **t'ap-**:

North Caucasian: NC ***k'āpi** = ***č'āpi** 'leaf' (SC 32; NC 12):

Chamalal **apal ~ lapā**, Lak **č'ap'i**, Dargwa **k'api ~ k'ap'i ~ k'aḡe**, Adyghe **tḡap**, Kabardian **tḡampa** id. (Yen 8)

Burushaski: **lap** 'leaf, leaflet, petal, leaf (of book)'

Sino-Tibetan: ST ***lap ~ *čep** 'leaf' (SC 32): Kanauri **lab**, Kachin **lap**, Takpa b-**lap**, Manchatl, Bunan **lab**, Newari **lap-te**, So **lop**, West Tib **lob-ma**, etc. 'leaf'; Ochin ***djaḡ** leaf' (STC 321)

Yeniseian: Yen ***jāpe** 'leaf': Ket **Λ:**, Yug **Λ:p**, Kot **dipi**, Arin **ip-onḡ**, Pumpokol (xogon)-**dip-un** 'leaf' (Yen 8)

Na-Dene: Ath ***t'an?** 'leaf': Minto **t'on?**, Mattole **-t'an?**, Navaho **-t'āā?** 'leaf'; cf. Ath ***t'a** and Tlingit **t'aw** 'feather'; Haida **t'aa-Gun** (or **t'aaGu-n** ?) 'feather', **t'ao-** 'feather-like object' (ND 68; K 32; P 184)

N: Starostin (SC 32 and Yen 8) compares NC, ST, and Yen, and, more remotely (Yen 8), Nost ***lap'a** 'flat, leaf' (N 256). Bouda (Jen 35) compares ST and Yen. Shevoroshkin (VS 100) compares NC, ST, Yen, with Nost ***lapV** 'flat, leaf', and Amerind ***t'apV** (< ****NaPV**) 'leaf'. Nikolaev (DC) compares ND ***t'a(n)h** 'feather' and NC ***t'i?imV** 'feather, wing'. Bouda (Tib-Kauk 43) compares NC (Chechen **t'am** 'wing', Lak **t'imu** 'feather') and ST (Tib **a-dab** 'wing, leaf, fan'). Shafer (RS 12.3) compares ST (Tib **a-dab-ma** 'wing') and ND (Ath ***t'a** 'feather'). Swadesh (1952) pointed out that Sapir had given the example of ND ***t'ayw-** 'feather' and Tib **-dab-** to his students at Yale. Shafer (Eur I: 12) also makes the comparison of ST ***lap** 'leaf' and IE ***leuP- ~ *lap-** 'leaf'. All told, this may involve several distinct roots and their apophonic variants.

105. **NUT** ****hur-**:

Basque: **hurr ~ ur** 'nut'

North Caucasian: NC ***h'ōr**-(**č'k'V**) 'nut' (NC 9): Chechen **bqāra** < ***Hwāra** 'nut', Ubykh **lā** id., Abkhaz **a-ra** 'nut tree' (BNC 73).

N: Čirikba (BNC 73) compares Basque and NC.

106. NUT₂ **xüns-(ur):

Basque: intzaur(r) ~ intxaur(r) ~ eltzaur(r) 'nut'

North Caucasian: NC **xūw(w) o 'nut' (NC 26)

Burushaski: xūnzūr 'kernel of a walnut'

Na-Dene: Ath *-xe(n) x? 'egg': Minto -yazra?, Chipewyan

-yeze, Navaho -yēēzi, San Carlos -yēēz, Mattole

-yēēxē? 'egg' (K 27; Hoijer 1956)

N: For the semantic relation of 'nut' and 'egg', cf. no.

49 above. The element **-ur (in Basque and Bur) may be

the same as no. 105 **Hur- 'nut'.

107. ROOT **cir-VC-:

Basque: sirats ~ sirax = /širaš/ 'sinew, nerve, vein'; cf.

dialectal i-zorro 'root' (BKE 64)

Sumerian: zir 'rope, cord'

Burushaski: chir ~ chiriš 'root'; cf. -chir 'gut, entrail';

(Werchikwar) čereš 'root'

Yeniseian: Yen *čir- 'root'; Ket ti:fi ~ ti:də ~ tir, Yug ti:h t,

Pumpokol ked-ig, Assan i-čič-an 'root' (Yen p. 158)

N: For the semantic relation of 'root' ~ sinew ~ vein ~ gut ~

cord', cf. above, no. 55. For possible remote connections,

cf. IE *ser(w)- 'vein, thread'; AA: Berber *zwr 'root,

vein'; Kartv *zaryw- 'vein, root'; Drav *cir- 'root', etc.

(BKE 64; Illič-Svityč 1967: 341; Blažek 1989a); Amerind

**cir- 'root, thread' (CP 153).

E. Adjectives, descriptives:

108. FULL₁ **bir-/bil-:

Basque: {cf. bil 'to gather, to unite, to amass / reunir, assem-

bler, amasser'; biri-bil-ka 'to amass / amasser'}

Burushaski: bil ~ bir-bir 'full', bir-bir 'quite full, full to

the mouth'; bil-bin-as bir-bin-as 'to rise excessive-

ly, to fill up (of water)'; di-bir-(anas) 'to become

full, to be filled full'

Sino-Tibetan: TB *blin ~ plin 'full, to fill': Tshungli ben,

Kanauri bōn ~ pōn, Kanashi plen, Rong blen, Lepcha

a-blyān, Digaro blon, Nung bin, Kachin phrin, Burmese

prañ id., Mikir pleñ 'full, complete; fulfill', pe-

pleñ 'to fill' (IST 291; STC 142)

Na-Dene: Ath: Carrier -ben 'full', Kato -ban?, Hupa -men, miñ,

Mattole -big, -biñ?, -bil, -biñ? 'to be or become

full', Navaho -bin, bī 'to fill' (RS 13.4)

N: Shafer (RS 13.4) compares ST and ND. Note the apophony

of r ~ l ~ n in several languages. For possible remote con-

nections, cf. NK **bvl- 'to be much' (Bantu *-bul-); NS

(Mimi bool, Acoli pool 'many', etc.); Nost *bul-/bol- 'to

swell' (AB 10; cf. N 29); Austric: AN *bil-aj 'to spread

out'; Australian *bul-ga 'big'; Amerind **bale 'strong'

(Am 247); also numerous types with **p:- NK: Bantu *pelu-

'to grow'; IE *pelu-/polu- 'much, many', *pel-H- 'full,

to fill'; Ur *palv 'much'; Drav *pala 'much, many' (AB 50);

Indo-Pacific: Tasmanian /paapela/ 'big, thick, strong';

Amerind **pelu- 'many' (Hokan 97; cf. And 1 'all').

109. FULL₂ **h₁k- (**h₁k-):
 Burushaski: hik ~ (Werchikwar) heek 'full'
 Na-Dene: Tlingit hik '(be) full' (SwTl 197)
110. FULL₃ **ʔoc'-:
 Basque: oso 'full, complete, whole / entero, completo; muy'
 North Caucasian: NC *ʔ₃c'V 'be full, fill' (NC 34): Andi b-
ic-i-b, Akhvakh b-ič'a-b, Lak b-uwc'u, Tabasaran
ac'u, Bats b-ac'in, Ubykh -za, Adygh, Kabardian jəz,
 Abkhaz, Abaza az-na id. (Yen 111)
 Sino-Tibetan: Tib cha-ŋ 'whole, complete', a-cha-r 'to be full-
 filled, finished' (Bouda 1950: 76)
 Yeniseian: Yen *ʔute 'full': Yug ūt, Kot ūt id. (Yen 111)
 Na-Dene: (Sarsi -c'i-st 'full' Hoijer 1956: 223)
 N: Bouda (1950: 76) compares NC and ST. Čirikba (BNC 42)
 compares Basque and NC. Starostin (SC 19) compares NC
 and Yen.
111. FULL₄ **Sik-:
 Sumerian: sig = sig 'to fill, to stuff'
 Burushaski: šek ~ šək 'full, filled up'
 N: Cf. Ainu šik- 'full, to fill'; Amerind: Tacanan *e-
sexe 'full' (Key).
112. ALL **küi-:
 Sumerian: kill-b 'whole / totalité'
 Sino-Tibetan: TB *kul 'all', thence *kul '20' ('all digits'):
 Tib kun, Burmese ā-kun 'all'; Kachin kun, Garo khol ~
k'al, Siyin kul, Haka kul ~ kwe '20'; OChin *kun- 'all'
 (IST 46; STC 397)
 N: Sum presumed to be < **küi-P-. For possible remote
 connections, cf. NK: Bantu *-kulu 'great'; AA: Sem *kwl
 (Arab kull, Heb kol 'all'); Indo-Pacific: (CSolomons)
 **kul- 'many'.
113. STRONG **c'aq -:
 Basque: zakh-ar(r) ~ zak-ar(r) 'strong, violent, coarse'
 North Caucasian: NEC *c'aq'q'V 'strength' (SC 11.14)
 Sumerian: zag 'power, might, strength'
 Sino-Tibetan: ST *chāk 'firm, hard' (SC 11.14)
 Yeniseian: Yen *sak-ar 'hard, stiff'
 N: Starostin (SC 11.14) compares NC, ST, and Yen. Trom-
 betti (T 333) compares Basque and AA: Tuareg i-šeg-er ~
 i-zeg-er ~ i-heg-er 'forte'.
114. HARD **gor-:
 Basque: gogor(r) 'hard, stiff, firm, cruel / duro, solido'
 North Caucasian: NC *g₃g'VrV 'hard, severe, dangerous' (NC 6)
 Sumerian: gur, gūr 'great, mighty / gros, puissant'
 Sino-Tibetan: Tib gar-ba 'strong', gar-bu 'solid (not hollow)',
gar-mo 'thick (e.g. of soup)' (STC p. 15)
 N: Cf. the following etymology.

115. DRY **gar~**Gar-:

Basque: a-gor(r)~i-gar(r)~i-har(r) 'dry'

North Caucasian: NC *g~g^WVr- 'dry, to dry up' (NC 30): Avar b-a-g^Wa-ra-b, Hunzib goqe-ru, Lak q'arq'-ša, Archi q'ure-tu, Lezgi q'uru~qurqur, Adygħ, Kabardian Rwə-, Abkhaz a-g^Wa-ra, etc. 'dry' (Yen 77)

Burushaski: qaqar 'very old and wrinkled' (of man, tree)

Sino-Tibetan: ST *qār~kār 'dry' (SC 13): OChin *kān 'dry',

*g'ān 'drought, dry'; Kachin kan 'to be dried up',

Burmese khan, Atsi kʔan 'to dry up' (STC p. 166)

Yeniseian: Yen *qVr₁~qVl- 'dry' (SC 13): Kot xuj-ga, Arin

qoi-ja, Pumpokol ič-koj-ŋa, Yug tɔ-xoiŋ 'dry' (Yen 77)

Na-Dene: Ath *gAn- 'dry': Minto -gUn, Chipewyan -gan, Navaho -gan 'dry' (K 47)

N: Čirikba (BNC 41) compares Basque and NC. Starostin (Yen 77 and SC 13) compares NC, ST, and Yen. Nikolaev (DC) compares NC and ND. Trombetti (T 131) compares Basque with NC, also Kartv, AA (Assyr kar-du 'strong'; Berber *kar- 'dry, hard'); IE *kor- (Goth har-du 'hard'). For alternation of **q~g (probably depending on presence or absence of prefix) cf. no. 41, and the analogous alternation of **p₁~b, nos. 13, 36, 37.

116. GOOD **Hun-:

Basque: hun~un~hon~on 'good'; hun-tu 'to improve, ripen'

North Caucasian: NC *h^Win-žV~*h^Win-žV 'good'; *Hün-tV~*Hin-tV 'to love, want'; *Hin-g^WV 'to love, want' (NC 7, 30): Ingush Xo-za, Bats ya-ze 'good', Chechen Xa-za-nig 'fair, attractive' (L 47)

Na-Dene: Ath *h^Wun 'to (be) good': Minto -zrun, Chipewyan -zū, Mattole -xoon~x'woon, Hupa won, Wallaki -soj, Navaho, Chiricahua -žō, San Carlos, Kiowa Apache -žōō 'good'; Tlingit xoon~Xon 'friend, fellow', XAn 'to love' (K 23; P 216; SwtL 196; Hoijer 1938: 83)

N: For possible remote connections, cf. AA: *han-/han- 'to show favor, be gracious'; IE *Hen-s- id. (AB 311); Alt: Mong. in-aG 'Freundschaft, Liebe; Freund, lieblich'; Drav *in- 'to be pleasant', *an-/an- 'love, friendship'; Elamite hani- 'to like, love, want, wish' (Blažek 1983: 4); Amerind: Paipai xan, Havasupai han-ika 'good', Tequistlatec han-ah- 'to like' (Hokan 75).

117. SWEET **mi~**zim-:

Basque: ezti 'honey, sweet'

North Caucasian: NC *mi~zV 'sweet', *h^Wi-mi~zV 'honey' (NC 7, 15): Avar ho-c'o 'honey', Andi mic'a 'sweet', Udi uc' 'honey', muc'a 'sweet', Archi imc' 'honey', Lak nic' 'honey', Bats moc' 'honey', Ingush moz 'honey', Archi -izdu- 'sweet' (BK 60; L 35)

Burushaski: mač^{hi} 'honey'

Sino-Tibetan: TB *im 'sweet': Tib zim-pa 'well-tasted, sweet-scented', Bahing zi~im 'sweet', Aka im-či 'fresh (water)', Burmese chim 'pleasant to the taste, delicious, savory' (STC 71)

N: Bouda (BK 60) compares Basque and NC. The Basque form seems to be derived from a prefixed form, such as *hi-miz-ti > *(h)ẽz-ti; cf. similar developments in NC (esp. Avar and Archi). Cf. Ur *majõV 'sweet sap', etc. (N 276); and/or Kartv *zıŋ- 'salt', FU *çem- 'sour' (AB 139).

118. BITTER **q'a)-q'aRH- ~ -GaRH-:

Basque: kharr-atx ~ garr-atz 'bitter, sour'

North Caucasian: NC *q'(q')elʔV ~ *q'(q')eq'(q')elʔV 'bitter' (SC 11.5): Tabasaran q'urq'li-, Rutul d-äq'äli-d-, Khinalug q'al, Hunzib n-aq'aru, Ingush q'aHa 'bitter'; Ubykh q'aq'ä, Abkhaz a-Xä, Kabardian ʔaf' 'sweet' (Yen 74)

Burushaski: yaqaŋy ~ yaqaauy 'bitter', yaqaŋy-um ~ yaqaauy-um 'bitter, sour'; (Werchikwar) qaqaa-m 'bitter, sour'

Sino-Tibetan: ST *ghāH 'bitter'; OChin *qāʔ id.; Tib kha-ba, Kachin, Garo, Lushei kha 'bitter', Burmese kha 'bitter', k'a-k'a 'bitterish' (SC 11.5; Yen 74; IST 44; STC 3)

Yeniseian: Yen *qVqVr 'bitter, bile'; Ket qōl-iŋ, Yug xaxil-aŋ 'bitter'; Ket qa:l', Yug xaxul, Kot ogar 'bile, gall' (Yen 74)

N: Starostin (Yen 74 and SC 11.5) compares NC, ST, and Yen. /y/ in Bur is a retroflex sound, transcribed /ʔ/ by Morgenstierne. For possible remote connections, cf. Amerind **kai or **q'ai 'sour' (Am 242; cf. MG 11 **koro 'bitter'; Hakan: Seri kakkaa-t, Yana k'ai 'bitter', Chimariko hiqhay 'bitter', q'oyoʔ 'sour'); Indo-Pacific: (SWNew Guinea) **koko 'bitter'.

119. HUNGRY **gVšE:

Basque: gose 'hungry, hunger', gose-te 'famine'

North Caucasian: NC *KašI ~ *ggašI 'hunger' (NC 11): Lak KašI, Agul gaš, Rutul gāš, Dargwa guš 'hunger', Tabasaran gaš-ti 'hungry' (BK 65; T 135)

Sino-Tibetan: Hruso khussī- 'be hungry' ~ lū-hūsī- 'hunger' (IST 177)

N: Bouda (BK 65) compares Basque and NC. Trombetti (T 135) compares Basque and NC, also AA (Somali gāxo 'hunger'), IE (Skt kṣu-dh- 'be hungry'), etc. Blažek (1983: 17) posits Nost *gacV 'be hungry', based on AA (Logone goz- 'hunger'), IE (Gk gas-tēr 'belly'), Ur (Ostyak kues-aŋ 'hungry sein'), Basque, and NC.

120. COLD **tin-:

Sumerian: ten '(be) cold', en-tena 'cold, chill, frost'

Burushaski: thaatine ~ thatine 'cold' (i.e. without clothes)

Na-Dene: ND *tin-q-: Ath: Chipewyan -ten 'to freeze', ten 'ice', Beaver es-tane, Carrier ten, Kutchin, Galice tan, Kato -təŋ, Navaho tin, Chiricahua tīʔ 'ice'; Eyak t'I-c ~ t'I-š 'ice'; Tlingit t'i-q' ~ t'i-x id. (P 264)

N: The Bur form is apparently reduplicated. For other examples cf. nos. (13) Bur buruŋr, (70) Suz dadara, (94) Bsq zizari, etc., (103) Mikir pepok, (114) Bsq goŋorr, etc.

121. DARK **tum-:
 Burushaski: tum-taŋ 'dark, darkness'
 Yeniseian: Yen *tum- = *t^hum- 'black': Ket tu?m, Kot t^huma,
 Assan tuma, Arin t^huma, Pumpokol tuma id. (Toporov
 1967: 320)
 N: Bouda (1957: 85, no. 68) compares Yen and Chinese tiem
 'schwarzer Fleck', and Bur ma-tum 'black'; but the latter
 is probably mat-um (= mat-um), -um being a common ending
 of adjectives (cf. burum 'white'). For wider connections,
 Shevoroshkin (VS 77) suggests Nost *t^humV 'dark' (Illič-
 Svityč 1967: 368) and Amerind *t^hUmV 'dark' (Am 76).
122. BRIGHT **c'al-:
 North Caucasian: NC *c'al-qV 'brilliance' (NC 2)
 Sumerian: zal 'to shine, be bright'
 Sino-Tibetan: TB *sal 'clear': Tib g-sal-ba 'to be clear, dis-
 tinct, bright', Kachin san 'clear, pure' (STC p. 15)
 N: Bouda (1950: 85) compares Tib and (NC) Dargwa sala
 'Licht'.
123. WHITE **bVr-:
 North Caucasian: NC *p^hurV ~ p^horV ~ b^horV ~ b^hurV 'gray, brown' (NC 17)
 Sumerian: babar 'white'
 Burushaski: bur-um 'white, gray'
 Sino-Tibetan: Ochin *b^hwâr ~ *pwâr, Lushei vaar, Karen *?(b)wa
 'white' (STC p. 172, n. 460)
 Yeniseian: Yen *pu?r 'bright, clear' (of weather): Ket hi?r!,
 Yug fî?r, Kot fur ~ phur id. (Yen p. 149)
 N: For possible remote connections, cf. Nost *bo^ha 'gray-
 brown' (N 18: source of Eng brown, bear, beaver; cf. also
 AA: Galla bōra 'yellow, cream-colored', and discussion of
 meaning shifts by Shevoroshkin, VS p. 17) = *bu^hr/*bo^hr-
 'brown' (AB 28); cf. Amerind *bore- 'yellow, green, blue'
 (attested in Equatorial-Tucanoan); Miao-Yao *mbrou 'green,
 blue'; AN *bi/r/u 'blue'.
124. WHITE/YELLOW **č'Ur-:
 Basque: zuri ~ xuri = /šuri/ 'white'
 North Caucasian: NC *h^wō-č'wōrV 'gray, yellow' (NC 8)
 Yeniseian: Yen *su^hr- 'yellow': Ket sul-(emam), Kot šui, Pum-
 pokol tu^h-si id. (Yen p. 159)
125. YELLOW **č'vk-:
 North Caucasian: NC *č'čakk^wV 'white, yellow' (NC 3)
 Sumerian: sig, 'yellow, green'
 Burushaski: šik-ark 'yellow; brass, copper', šIq-AM 'green,
 blue, gray', šIqa 'grass', šIq-(iil) 'gray-eyed, fair-
 skinned'
 Sino-Tibetan: ST *č'čak 'red, gold': Garo gi-č'čak 'red', Lushei
 (raŋ-ka)-č'čak 'gold', Kachin ša 'gold', Ochin *thjāk
 'red' (STC 184, SC p. 25, n. 6)
 Yeniseian: Yen *tāk- 'white': Ket tay-AM, Yug tig-, Kot thək-AM
 ~ thēg-AM, Assan teg-ama, tiēk-ama id. (Yen p. 147)
 Na-Dene: Tlingit s'uw 'blue, green, greenstone'; Ath *-cUx^w ~
 *cux^w? 'yellow': Tanaina -čək, San Carlos -cog id.,
 Chasta Costa -əo 'yellow, green', Kato -coo 'blue'
 (K 65, P 249)

N: Nikolaev (DC) compares NC and ND. For possible remote connections, cf. Amerind ***cak^w** 'yellow, red' (AK 156, MP 51, Eq 133).

126. BLUE ***sün-**:

North Caucasian: NC ***sünV ~ *sünV** 'blue, green' (NC 22)

Sumerian: **si** '(be) dark-colored' (< ***sī** ?)

Sino-Tibetan: TB ***sim** 'black, blue, dark': Garo **sim**, Dimasa **sim-ba ~ sum-ba ~ gi-sim ~ gu-sum** id., Lushai **t^him** 'dark, darkness' (STC 380)

Veniseian: Yen ***son** 'green': Ket **son** 'blue' (Jen 152, SC 22)

Na-Dene: Ath ***x^wen** 'black': Minto **-zren**, Beaver, Chipewyan **-zen**, Sarsi **-zini**, Kato **-šini?**, Mattole **-xin**, Navaho **-šin**, Chiricahua **-ši?** id. (K 16, Hoijer 1956)

N: Starostin (SC 22) compares NC, Yen, and ST ***srian** 'green'; cf. Jen 152. Blažek (1989a) notes that the NC forms could be loaned from IE (Iranian: Kurdish **šin** 'green, blue', etc.). If the Sum form belongs, we assume 'nasalization of the vowel, as in nos. 43 and 55.

127. GRAY/OLD ***gur-**:

Basque: **a-gure** 'old man', **a-gure-tu** 'to grow old'

Burushaski: **guuro** 'grayish' (cf. Shina **guuro** 'self-colored, gray, brown', from Bur substratum)

Sino-Tibetan: Hruso **gro ~ grou ~ ghrō** 'white', mo-**khro** 'old man'; Tib **b-gre-s** 'to grow old'; Ochin ***grji** 'old'; Dima-**sa gara** 'elder', **gara-sa** 'aged, old man' (IST 50, 178, Eur I: 32, Baxter 1985: 246)

N: Trombetti (T 144) compares Basque with ST (Tib), also with AA (Berber **a-m-yar** 'vieillard'). Shafer compares ST with IE ***ger-H-** 'old', ***g(e)rei-** 'gray' (Eur I: 32).

128. OLD/YEAR ***sün- ~ sVn-**:

Basque: **sen-ton** 'old man / anciano avanzado', **sen-tana** 'old woman'; cf. **san-tan** 'ever, never' (Blažek 1989a)

North Caucasian: NC ***sūno ~ *s(w)āno** 'year': Avar **son**, Akhvakh **re-sen**, Andi **re-šin**, Tindi **re-han**, Lak **šin**, Archi **šan**, Rutul **šan**, Chechen **šo**, Ingush **šu**, Ubykh **š^wa** id. (NC 22, SC 7.13, Yen 126)

Sumerian: **sun ~ sumun** '(be) old'

Burushaski: **šini** 'summer'

Sino-Tibetan: ST ***snī-ŋ** 'year, old': Pyu **snī**, Karen ***hne-ŋ**, Burmese **ā-hna-ts** 'year'; (Ochin ***nie-n**, Tib **ni-ŋ** 'year, old' without s-) (SC 7.13, STC 368)

Veniseian: Yen ***sin-** 'old', ***sī-Ga** 'year' (< ***sin-Ga**): Ket **šin** 'old', **ši:** 'year', Yug **sin** 'old', **si:** 'year', Kot **še-ga**, Pumpokol **ci-ku** 'year' (Yen 126, SC 7.13)

Na-Dene: ND ***šan-** '(be) old': Tlingit **šan** 'old', ya-**šan** 'to be old', **šan** 'old person'; Ath ***šan-** 'old, to grow old': Beaver **šoon** 'old age', Navaho **sani** 'old', **sā** 'old age', Mescalero **saan-e** id.; cf. Ath ***šen-** 'summer': Minto, Ingalik **san**, Han **šin**, Chipewyan **sine**, Navaho **ši** id. (ND 85, K 14, P 30)

N: Starostin (Yen 126, SC 7.13) compares NC, ST, and Yen, and notes resemblance to Nost ***sVnV** 'year, old' (Illič-Svityč 1967: 337) = ***šan-/*sen-** (AB 291). Cf. also:

Amerind **SVn- 'old' (MP 50, Eq 90); cf. Indo-Pacific (Madang) *sonim- 'old'.

F. Society:

129. PERSON₁ **nV-:

- Sumerian: ní 'person, self', ní-ri-a 'family'; na 'person'
Sino-Tibetan: (TB *na: Tib g-na-s-pa 'to live, dwell, stay',
Kanauri na-si 'to rest', Bahing na-so 'to take rest')
(STC 414) cf. ST *nām 'man / mužčina, čelovek' (SC 2.4)
Na-Dene: ND *na 'person, people, house': (Haida na 'to live;
house';) Tlingit na 'tribe, people'; Ath: Ath *-ne ~
*-n 'person, people': Sarsi di-ne, Beaver, Chipewyan
də-ne, Carrier de-ne, Navaho di-ne, Chiricahua n-nde,
San Carlos n-nee 'person', Mattole -nii 'person'
(postposed particle) (ND 51, P 19)
N: Shafer (RS 3.8) compares ND *ni and ST *mi, which is
just as plausible as the above (for phonology, cf. no. 5).

130. PERSON₂ **CE(w)-:

- North Caucasian: NC *čwījo 'man' (NC 3) = *čhiw(±) 'čelovek,
mužčina' (Yen 152): Avar či, Lak čuw, Dargwa sub,
Tabasaran ži, Agul švuj, Lezgi ze-k'u, Chechen sta-g,
Ingush sa-g id.; Lak čiw-(ark') 'people, men'; Ubykh
čəca 'people / l'udi', etc. (Yen 152)
Sumerian: za 'person / Mensch'
Burushaski: sis 'person, man, people, folk' (cf. Ubykh čəca,
above) Werchikwar ses 'person, people'
Yeniseian: Yen *še?-η 'people / l'udi': Ket də?-η, Yug də?-η,
Kot čə?-η id. (Yen 152: -η is plural ending)
N: Starostin (Yen 152) compares NC and Yen.

131. MAN₁ **h₂ur- (**h₂ür-):

- Basque: arr~ar 'male / macho, animal masculino'
North Caucasian: Hurrian ewri-; Hatti wur 'man'; NC *Hir-k~V
'man' (NC 7) = *her-k~wi 'čelovek' (Yen 152); cf.
NC *Hir-šw 'male' (NC 31)
Sumerian: ur 'person', later 'servant, slave'
Burushaski: (Hunza) hiir 'man (vir), male', hir-iiski 'per-
taining to men, man's', cf. -uyar 'husband'; (Werch-
ikwar) hiir, pl. huuri 'man', hur-iski 'pertaining
to men', -yuhar 'husband'; cf. also her 'bull'
N: Trombetti (T 35) compares Basque arr with an array of
forms in Khoisan, AA, NC, IE, Alt, Drav, and Amerind. The
above etymology assumes a development of the type **Hir-
>**(H)er-> ar- (cf. **ler-> lar-, in no. 8). For pos-
sible remote connections, cf. Nost *wi/H/rV 'male' (IE
*wir-o-, Kartv *xwir-, Alt ory, Ur */wy/ra, AA *w(H)r-:
Illič-Svityč 1967: 362), or Nost *xe/w/rV 'male' (IE
*xeur-~*xwer- and Kartv *xwir: Kaiser & Shevoroshkin 1985:
no. 27). Boisson (1989a: no. 106) compares Sum, Bur, and
Nost *wiHrV. Note the concordance of Basque arr-ez-ko
'masculine' and Bur hir-iis-ki~hur-is-ki 'man's, men's'.

132. MAN₂ **mVn-:
 North Caucasian: NEC *mVn-XV 'man, male / mužčina, samec' (SC 2.4)
 Sumerian: mu~me~me-z 'man'; cf. man 'Bruder, Genosse, Zwill-ling'
 Burushaski: men~men-ik 'some one, anyone; some people, any people; some, any' (cf. men 'who?')
 Sino-Tibetan: TB *r-mi(y) 'man (homo)': Tib mi, Gyarung ter-mi, Kanauri mi, Magari (bhar)-mi, Lushai mi id.; OChin *mjen < *mjin 'people' (STC p. 107, n. 301, p. 158, n. 428; Baxter 1985: 255)
 Yeniseian: ? Yen *pi-x- 'man / mužčina' (SC 2.4)
 N: Starostin (SC 2.4) compares NC, (ST *nām 'man'), and Yen. (The phonetic development of Yen *pi-x- seems to be anomalous.) Shevoroshkin (VS 107) compares NC with Nost *mona/*m[aj]no 'man' and Amerind *mano 'husband' (Amerind 154). Peyros (IP 63) compares Nost, SC, and Austric (Mon-Khmer *mVn 'man / čelovek'). Ruhlen & Shevoroshkin (LONA 65) compare Nost and Amerind (*mano~*meno 'man, husband'). Other widespread resemblances in GlobEt 17 MANO 'man'. If Sum forms belong, we assume nasal vowel, then loss of nasalization; perhaps similarly in some ST forms (see nos. 43, 55, 126). For the development in Bur from noun to in-
 definite pronoun, cf. French on, German man, etc.
133. MAN₃ **KVn-:
 North Caucasian: NC *kVn-(V)t'V *k'wVn-(V)t'V 'male, youth': Andi, Karata kun-t'a, Tindi k'win-t'a-b 'husband, man, male'; Chechen, Ingush k'an-t, Bats k'n-at 'boy, youth, fellow' (NC 10, Yen 39)
 Yeniseian: Yen *keʔt 'man / čelovek' (analyzed *ke-ʔt from **kē-t-ʔ ?): Ket, Yug kēt, Kot het~hit, Arin kit, Pumpokol kit id. (also ethnic name Ket: Yen 39)
 Na-Dene: ND *-gan-(i)? : Tlingit ga 'man, male, person', qa 'someone'; Eyak qa~qaʔ 'husband'; Ath *-kanʔ or *-kanʔ 'husband': Minto -kUnʔ, Tanaina -gon, Ingalik -kin, Hupa -xanʔ, Wailaki -kan-k id.; Navaho, San Carlos -kāāʔ 'male, husband'; (? Haida Xaida~Xaida~Xada 'human being(s), people, Haida') (K 51, P 113)
 N: Starostin (Yen 39) compares NC and Yen. For remote connections, cf. Amerind: Choctaw kana, Wappo kaniʔ 'person' (Pen 177).
134. WOMAN₁ **qVm~**qVn-:
 North Caucasian: NC *qVnV 'woman': Dag *qhvMV 'woman': Tabasaran Xu-(pir) id., Archi Xom, Agul Xum-(bar), Lak gami 'women', Kryts Xin-ib 'woman, wife' (NC 18, Yen 24)
 Sumerian: gēme ~ (Emesal) gen 'woman, maiden, slave'
 Burushaski: qūma 'concubine' (same word in Khowar, Dardic language with Bur substratum)
 Yeniseian: Yen *qVm~*XVm 'woman': Ket qīm, Yug xem / xim, Arin kem-el# id., Arin (bi)-gam-al '(my) wife' (Yen 24)
 N: Starostin (Yen 24) compares NC and Yen. For possible remote analogies, cf. VS 37, and GlobEt 13 KUNA 'woman'.

135. WOMAN₂ **Ciu--:
 Basque: a-tso 'old woman / anciana, vieja'
 North Caucasian: NC *z3wVjV 'female': Avar c'o 'female, woman'
 (NC 27, BKE 11) Hatti ziwa-tu ~ zawa-tu 'wife'
 Burushaski: -n-co 'paternal aunt'
 Sino-Tibetan: (Hruso zi ~ g-si 'wife': IST 178)
 Na-Dene: ND *cu ~ *cu-na: Eyak -cuu 'grandmother'; Ath *-<co-ŋ
 'mother-in-law', *-<co-ne 'grandmother': Kutchin -ciōō
 'grandmother', Sarsi -su id., -co-ni 'father's mother',
 Hupa č'woo, Navaho -co 'mother's mother'; Tlingit ča-n
 'mother-in-law'; Haida čoo-n id. (K 6, P 73)
 N: Bouda (BKE 11) compares Basque and NC.
136. KINSMAN **Cami--:
 Basque: seme 'son', seme-ak 'sons, descendants'
 North Caucasian: NC *čamV 'kinsman, relative' (NC 3)
 Burushaski: čaam 'relation, kinsman (distant, having no claim
 to inheritance of land, etc.; cf. čamaaat 'spouse;
 family, household' ult. from Arabic)
 Sino-Tibetan: TB *za(n) ~ *ca(n): Tsangla za ~ ča, Kachin ša,
 Garo bi-sa, Dhimal čan 'son, offspring'; Lepcha ā-zon
 'grandchild'; Ochin *chjēn 'relatives'; Tib ča 'neph-
 ew/niece, grandchild', pāa-čan 'cousins on father's
 side', gnyen-čan 'kindred, relations'; Nung zami,
 Burmese sami 'daughter' (STC 59)
 Na-Dene: ND *san-i ~ *san-e: Tlingit saŋi ~ saŋi ~ saŋne 'father's
 brother' (including all men of phratry of father's gen-
 eration and of the succeeding generation); Ath: Wai-
 laki, Lassik, Sinkyone ti-sne-t 'father's brother';
 Navaho saani 'womenfolk' (P 78)
 N: For the development of SC **-<m- to ND *-<n-, cf. no.
 56. Benedict refers to the TB *n as a suffix, but here, as
 in several other cases, external comparison may indicate
 that the nasal originally belonged with the root; the nasal
 was apparently lost, in certain environments, by nasaliza-
 tion and denasalization of the preceding vowel. (Cf. the
 note to no. 132.)
137. NAME **Cen--:
 Basque: i-zen 'name'
 North Caucasian: NC *z3wēr-ʔx 'name': Adygh-Kabardian c'a,
 Ubykh p'-c'a, Chechen c'e, Lak c'a, Udi c'i, Avar
c'c'ar, Andi c'c'er, Archi c'or id. (NC 27, BNC 59)
 Sumerian: zi 'name' (the more usual term was mu); cf. sa
 'to name, to call by name'
 Burushaski: sen-as 'to say, tell, call, name', sen-as 'named'
 Sino-Tibetan: (Tib m-can 'name')
 Na-Dene: Tlingit sa (SA) 'name, voice', -sa, -sen 'to name, to
 breathe'; Yakutat va-ššeh 'name'; Ath: Tahltan u-
zii, Sarsi -zi?, Chipewyan -n-zi, Tanana -o-zad,
 Wailaki -ši ~ -ši?, Navaho, Jicarilla -i-zi? 'name'
 (P 204)
 N: Čirikba (BNC 59) compares Basque and NC. For the appar-
 ent anomalies in phonetic correspondences, cf. the IE words
 for 'name'. For possible remote connections, cf. Amerind:
 Micmac we-son, Caddo hi-saar, Mohawk hsān 'name' (AK 134)

G. Pronominal roots:

138. FIRST PERSON₁ **nV-:
 Basque: ni ~ ni ~ ne 'I, me'
 North Caucasian: NC *n₁ 'I': Lak na, Dargwa nu (NC 16, JC)
 Sumerian: ? ni 'self' (suggested by Blažek 1989a; cf. no. 129)
 Sino-Tibetan: ST *n₁ 'I': Tib na, Garo ag, Kachin nai 'I',
 Tib ne-d 'I, we' (elegant), Lushai nei 'self', Ochin
 *ngo 'I'; cf. Hruso a-ni, Rgyarong a-ni 'we' (IST
 176; STC 285, 406; SC 29)
 Na-Dene: ND *na ~ *nu- (first person plural): Ath *nu-hani ~
 *na-hani 'we': Chipewyan nu-hni, Hare na-xeni, Sarsi
na-ni, Navaho ni-hi, Chiricahua, Lipan na-hi id.;
 cf. Tlingit ?u-han 'we' (from *un-han?) (P 274)
139. FIRST PERSON₂ **SV-:
 North Caucasian: NC *zo 'I': Abkhaz, Abaza sa-, Chechen, Ing-
 ush suo, Tindi, Bagwali de, Khwarshi do, Lezgi zu-n,
 Archi zo-n, Rutul, Tsakhur za (Yen 137, JC)
 Burushaski: za ~ ze 'I, my', zei ~ zezei 'I myself'
 Sino-Tibetan: Kewari (Pahri) zi, Rangkas, Darmiya, Shadungai,
 Byangsi zi, Naga-Kuki yi ~ i 'I' (Kuiper 1966: 69)
 Yeniseian: Yen *za 'I': Ket at, Yug at, Kot ai, Arin aj,
 Pumpokol ad 'I' (Yen 137)
 Na-Dene: (? ND xi): Eyak xwu ~ xuii ~ xw ~ x- 'I', xwo- 'me',
s ~ s ~ si ~ si ~ se 'my'; Ath *si 'I, me': Tanaina
si?, Minto, Carrier, Kutchin, Chipewyan si, Mattole,
 Kato, Umpqua, San Carlos si, Navaho, Chiricahua, Ji-
 carilla si id.; Tlingit x ~ XA ~ XA-t ~ Xa-t 'I', etc.
 (K 13, P 206)
140. FIRST PERSON₃ **mV-:
 North Caucasian: NEC *mV 'I' (SC 29)
 Sumerian: (Emesal) me- 'I', -mu, -ma 'my'
 Burushaski: mi, mi- 'we, us, our', mi (occasional) 'my'
 Sino-Tibetan: Burmic *mi 'self': MBur mimi, Nyi me, Ahi ma-,
 Lolopho me- id. (Blažek 1989a, IST 382)
 Yeniseian: Yen *b ~ *ab-: Ket ap ~ aba 'me', ba ~ bo- (1st per-
 son sing. in verbs), Yug ap, Kot m-inšo 'me' (Yen 16,
 Taillieur 1958: 421)
141. FIRST PERSON₄ **tV-:
 Basque: -t 'I' (ending of verbs) (Trombetti 1926: 36)
 North Caucasian: NC *tV- = *thv- 'we': Abaza te ~ t(i)-,
 Chechen, Ingush, Bats tho = txo ~ txwo 'we' (Dumézil
 1933: 46)
 Na-Dene: ND *ta ~ *tu: Tlingit tu ~ tu 'we'; Haida t'aa-lān ~
t'a-lān 'we'; Ath: Mattole -di-, Hupa -it-, -id-, -d-,
 Navaho, San Carlos -ii(d)-, etc. (first person plural
 subject); Mattole di 'me'; Eyak daa- (first person
 plural subject); Haida dii 'me' (P 274)

142. SECOND PERSON₁ **wV-:

- North Caucasian: NC *u₂ (NC 24) = *u₀ (SC 60) 'thou': Archi u-n, Tabsaran uvu, Lezgi v_u-n~wu-n, Tsakhur vu, Khinalug ve, Rutul va, Adygh, Kabardian wa, Abkhaz, Abaza wa-, Ubykh we-; Hatti we-, u-, Hurrian-Urartean *we- 'thou' (Tailleur 1958: 422, no. 3; Yen 32; VS 54)
- Burushaski: uu-n~uu-u~uu-m 'thou' (nom. and acc.)
- Yeniseian: Yen *ʔaw / *ʔu 'thou': Ket ū, Yug u, Kot, Arin au, Pumpokol ue 'thou' (Yen 32)
- Na-Dene: Tlingit wA₇e~wAe~wae~wae-č 'thou' (SwTl 170-71; P 273: the explanation that wa- is a demonstrative element seems contrived and implausible, in the face of a solid Sino-Caucasian lexeme for 'thou'.)

143. SECOND PERSON₂ **Ki-~**Ku-:

- Basque: hi~hi~he- 'thou, thee, thine'; h-, -k (second person verbal elements) (Trombetti 1926: 86; Tailleur 1958: 422, no. 3)
- North Caucasian: NC *Gu 'thou': Tsakhur Ru, (genitive) j_iR-na 'thou'; Dargwa hu, Khinalug (dative) oX, Chechen, Bats ho, (ergative) ah id. (Yen 47, NC 6, SC 60)
- Burushaski: gu-, go- 'thou, thy' (prefixed to nouns, adjectives, and verbs), guu-i 'thou thyself' (corroborative), goo-r 'to thee, for thee' (cf. Basque hi-re 'of thee, thine'); (Werchikwar) gu-, go-, -ku-, -ko- 'thou' (oblq.)
- Sino-Tibetan: ST *k^wVj 'thou': Tib k^{hy}i-d, Bur kwaj, Garhwal k^{he}-~k^{hyo} 'thou' (Yen 47, SC 60)
- Yeniseian: Yen *kV- / *ʔV_k- 'thou': Ket, Yug k- / ku- (2nd person singular), k_{en}- (2nd person plural), Ket k_k, k_k-u, Yug k_k-u, k_kk-u, Pump aj-aj 'you' (plural) (Yen 47)
- Na-Dene: ND *ʔuX-a~*ʔuX-I 'you' (plural): Tlingit yi~yi (2nd person pl. subj., obj., poss.), yi-han~yi-han~yi-waan 'you' (absolute); Ath: Chipewyan uh-, Mattole oh-, Hupa, Kato ooh-, Navaho, San Carlos oh-~oo-, etc. (2nd person plural subj.); Chipewyan nu-he (2nd ps. pl. obj., poss.), Navaho ni-hi, San Carlos no-h^wi, Kiowa Apache na-xi (2nd ps. pl. obj.) (SwTl 170, P 272)

144. SECOND PERSON₃ **Su-:

- Basque: zu, zu- 'you' (plural)
- North Caucasian: NC *z^wV 'you' (pl.): Chechen, Ingush, Bats su, Lak zu, Tsakhur su, Archi zve-n, Abkhaz, Abaza s^wa, Ubykh sw_e, Adygh s_we / fe (NC 27, JC)
- Sumerian: za-~ze-~ze- 'thou', -zu 'thy'

145. SECOND PERSON₄ **nV-:

- Sino-Tibetan: ST *na~na-n~na-n 'thou': OChin *njo 'thou' (subj.), *nja 'thee' (obj.), MBur, Lushei, Thami na-n, Garo na-ʔa 'thou', na-n-ni 'thy', Dhimal, Nung na 'thou' (IST 38, STC 407)
- Na-Dene: ND *ni 'thou': Ath *ni: Galice na-n, Hupa ni-n (abs.), Kato, Mattole ni-n (abs.), ni (obj., poss.), n~n (subj.), Navaho, Chiricahua ni (obj.), ni~n (subj.), Kiowa Apache ni (subj.), di (obj.); Haida da~da-n 'thou', da-n 'thee'; (? Eyak, Tlingit ʔi 'thou') (P 273)

146. INTERROGATIVE₁ **SV-:
 Basque: ze-r 'what, how', ze-in~zu-ñ 'which', ze-n-bat 'how much', etc.
 North Caucasian: NC *sa 'what': Avar su-n- 'what', Akhvakh su-n- 'who, what', Hinukh se 'what', Hunzib si-n- 'what, which', se-j- 'who, which', Lak sa-, Dargwa se, Khinalug ja-za, Chechen ste-, Bats st'i-, Ubykh sa, Adygh se-d, Kabardian se-t 'what' (NC 22, Yen 142)
 Burushaski: be-s~be-sa-n 'what', be-se~be-se-r~be-sa-nar 'why'; (Werchikwar) be-sa 'why', ba-sa 'when'
 Sino-Tibetan: ST *su 'who': Tib su, Bur a-su id. (SC 65, Yen 142)
 Yeniseian: Yen *as-/sv- (interrogative): Ket aseś 'which', as-ka 'when', Yug asejs 'which', ase-ra 'who (of women)', as-kej 'when', assa 'what', Kot asi-x 'which, how', si-na~se-na 'what' (Yen 142, Tailleur 1958: 423)
 Na-Dene: Haida guu-su~guu-s 'what', gii-s 'where', ga-si-p 'why, how'; Tlingit sa (interrogative particle), da-sa 'what', wa-sa 'how', ?Adu-sa 'who', gu-su 'where'; Ath: Chipewyan -sa, Navaho -sa?~s~iś (interrogative enclitics) (SwH 261, SwTl 198-199, P 205)
147. INTERROGATIVE₂ **nV-:
 Basque: no-r~nu-r 'who', no-iz~nu-iz 'when'
 North Caucasian: NC *nV (interrogative): Dido ne-ti 'when', Hunzib ni-jo 'where, whither', Archi ha-n(i), Chechen hu-n 'what', Agul na, Lezgi ni, Bats me-n 'who', Abkhaz, Abaza -an(a)- 'when' (NC 16, SC 9.3, Yen 124)
 Sumerian: a-na~en~en-na 'what', ma-na~me-na 'when'
 Burushaski: (Werchikwar) a-na 'where, whither', a-n-Um 'whence'
 Sino-Tibetan: ST *nai(?) (interrogative): Ochin *nai 'how, what', Tib na 'when' (SC 9.3, Yen 124)
 Yeniseian: Yen *an- 'who': Ket an-ej~an-a, Yug an-et id. (Yen 124)
 Na-Dene: ? Tlingit da~da-sa 'what'; Ath *da 'what': Navaho daa id., Mattole da- (in dando? 'who', daido? 'which', dahdo? 'how' (ND 6, P 136; for other examples of d/n interchange, cf. no. 145 above, and P 229, 230, 274)
148. INTERROGATIVE₃ **ci-:
 North Caucasian: NC *ci~ci (interrogative pronoun): Avar ca-n 'how much', Kubachi ci- 'what', Lak cu 'where', ca 'whence', etc. (NC 4, Dumézil 1933: 60-61)
 Sino-Tibetan: Tib ci 'what, why, how' (RS 3.2)
 Na-Dene: Ath: Kato -ci~ci~ci 'why, who, what, when, where' (RS 3.2)
149. INTERROGATIVE₄ **ki-:
 North Caucasian: NC *kwi~kwi 'who, which': Khinalug kh-la 'who', Kurin ku- 'what', Archi kwi- 'who', Avar khi-n 'how', khi-na- 'what kind of' (NC 10, Dumézil 1933: 61)
 Sumerian: ki 'where'
 Burushaski: ? beš-ki 'what kind of, what sort of'
 Sino-Tibetan: Ochin *kjei 'how much', Hruso khi-nia 'how many', khi-mia 'how far' (IST 46, 177)
 Na-Dene: Haida gii-s 'where', guu-s 'what', ga-sip 'why, how'; Tlingit gu-su 'where' (SwH 261, SwTl 198-199)

SUPPLEMENTAL NOTES to Etymologies:

Several relevant articles became available to the author after work on this survey was well under way. Additional abbreviations used here are:

BSum	Sumerian Word List, Boisson 1989b
CB	Boisson 1989a
NDE	Na-Dene Etymologies, Ruhlen 1989b
S	Starostin 1989
UV	Uralic Vocalism, Shevoroshkin 1990

4. Cf. also Sum nini 'gem / Edelstein'. Bsq nini also means 'child' (Span niño, niña 'child', niña del ojo 'pupil'), NC also means 'doll', Bur also means 'uncle'. Like no. 42, these words belong to the category of universal Lallwürter, which are highly archaic and not 'onomatopoeic'!
6. Peyros gives SC *newxqV 'gnoj / pus', and compares further with AN *nanah id. (IP 105). For alternation of n-/m-, see "Phonology: Some Special Cases".
7. Cf. Nahali golga 'earwax'.
9. Peyros (IP 102) compares SC *mVtV 'face' with AN *mata 'eye' and Mon-Khmer *mat 'eye, face'.
10. Boisson (CB 77), following Militarev, compares Sum saŋ /saŋ/ and Cushitic *sVg 'head'.
11. Add Sum sīg, sīk, sīki, sīk-ūz 'hair' (BSum 74).
12. Shevoroshkin (UV 27) compares SC with Salish: Squamish cúm-n, Sechelt ca-cum-an 'eyebrows'.
14. Starostin (S 146) compares NC with Nost *p'unčE 'body hair' (N 365). Ruhlen & Shevoroshkin (LONA 95) compare Nost and Amerind (probably **Puči 'hair, feather').
16. For the development of Yen *bunč-, see "Phonology: some special cases." Shevoroshkin (UV, note 8) compares Tlingit waš rather with Salish: Sechelt was-ak-w-əna 'cheek'. (Both the ND vowel and final -š/-s seem to remove it from SC *muč(?).)
19. Boisson (BSum 195) gives Sum zu, su 'tooth'.
20. Cf. Nahali kaggo 'mouth'.
21. Yen *xay (Kot ay, Pump hay) 'nose' does not seem to belong here. cf. Chukchi-Kamchatkan *Xəŋ id. Initials in Bsq and Bur are irregular, by contamination or apophony? Starostin (S 165) compares SC *sunV 'smell' with Nost *sun(g)V id. (Illič-Svityč 1967: 342).
22. Cf. Nahali cōn 'nose'; Nost *čūn-gV 'smell, odor' (N 51), which Ruhlen & Shevoroshkin (LONA 12) compare with Amerind *čun(k)a 'nose, to smell'.
23. Cf. also NC *merkV 'nose, beak' (NC 14) (K' = č).
25. Add Sum diš 'one', if **k > š, as in no. 54. Ruhlen & Shevoroshkin (LONA 110) compare Eurasiatic *tik 'finger, one' and Amerind *tik id.
28. Starostin (S 102) posits S2 *lEkV 'leg', and compares it with Nost *l/a/k'a id. Distinct from SC *lakV 'hand/arm'.
31. Add Sum kišib (kiš-ib) 'hand' (BSum 75).

32. The ST forms, if they belong here, are the result of "compression" (see "Notes on Prefixes"), something like **gal-Vk⁰V > **galak->glak. This entirely parallels Starostin's ST *šrik from **širV-kV (S 174).
33. ? Add Haída til 'thigh' (NDE).
36. Starostin (S 141) posits SC *bArV ~*pArV 'claws, paw, cupped hand' (ST *Par, Yen *per), compared further with Nost *parä, *par/č/V 'nail, claw, finger' (N 362).
42. Add Yeniseian: Ket mam 'nipple / Brustwarze', mām-ar ~mām-el 'milk' (Jen 91). Cf. Supp. note to no. 4.
47. ? Add Sum dal 'breath, life, soul' (BSum 19). Note the semantic relation of 'blood' : 'breath', invoked by Starostin in two etymologies (S 37, 169). Add ND: Eyak dei 'blood' (NDE).
54. Starostin (S 142) posits SC *bHEX⁰V 'intestines', but forms in Bsq, NC, and Bur indicate -rk⁰-, later -rK⁰-. Shevoroshkin (UV 37) compares NC *bHEX⁰V with Salish *p'i? 'guts'.
56. Shevoroshkin (UV 30) compares NC with Salish: Moses Columbian s-c'am', Cowichan s-gam? 'bone'.
57. ? Add Bsq -khotxe = /khoče/ as in gar-khotxe 'nape / nuque'; Sum kuš 'side' (if from *rib as in Latin-Romance costa).
59. Boisson (CB 94) compares Sum and ST.
63. Add Burushaski: Werchikwar tāp 'heat / Hitze' (Blazek 1989a). Starostin (S 186) compares ST and Nost *t'āpV 'warm, heat'. Peyros (IP 25) compares further AN *dap-uy 'hearth', and notes that convergence of meanings in ST and AN could have resulted from contact.
64. Starostin (S 144) posits SC *-pVhV ~-bVhV 'heat, burn' (ST *pū ~*bhu 'burn, roast, boil', Yen *(?a)pV- 'heat, hot'), compared with Nost *p'iywV 'fire, heat'; Peyros (IP 40) further compares AN *?apuɟ 'fire'. Ruhlén & Shevoroshkin (LCNA 90) compare Nost and Amerind.
65. This etymology seems to include two of Starostin's roots: SC *c'ajV 'shine, light, fire' (S 10) and SC *-cV 'burn, heat' (S 38).
70. Shevoroshkin (VS 93) compares Nost *dGVV 'sun', SC *tVga id., and Amerind *dogE id.
73. Starostin (S 211) posits SC *zArhV 'star', compared with Nost *zArhV 'moon' (IE *Ha-ster- 'star').
76. Starostin (S 21) posits SC *dVzV 'clay' (ST 3 'en), and compares it with Nost *dikV (modified from Illic-Svityč's *diqV (N 69); Bomhard (AB 72) reconstructs *diq^h-/*deq^h-). Shevoroshkin (UV note 15) compares Nost, SC, and Salish: Squamish tiq^w 'muddy', Cowichan s-t'iq-əl 'mud', also Penutian tiq- (? 'clay').
80. Add Bur chiš 'mountain'.
82. Add Sum a-tu₅ 'to wash', tu₅ 'sich waschen' (BSum 203). Starostin's SC *-t'wV 'water, pour' (S 203) could account for some of the ST forms here, which have surely merged with the **thuɟ-forms in some places. Cf. Burmese twe 'to flow' but thwe 'to spit'.
85. ? Add Sum giɾi (giɾ-giɾ) 'to flow' (if g represents /y/: see "Phonology: Some special cases"). The comparison of Sum with Nost and SC is made by Boisson (CF 60). Starostin (S 27) posits SC *HwVrHV 'flow, pool' (ST 3 'en), and compares Nost *yuru 'flow, flood'. Peyros (IP 30) further compares Mon-Khmer *hūr 'to flow'.

86. The Sumerian forms possibly belong with ST *šəg 'hoar-frost, cold' (S 172).
87. Add: ND: Eyak xawa ~ xəwaa, Yakutat hava 'dog' (P 99).
90. For possible remote connections, cf. IE *h₂kt-o- ~ *h₂tk-o- 'bear', Finno-Ugric *okte id., Drav *V_{nc}-(V_k-)/*V_{lc}-(V_k-) id. (Blažek 1989a).
92. ? Cf. Nahali carko 'black-faced monkey' (Kuiper 1962).
94. Add: ND: Tlingit h'uk'xu nen ~ 1'Ut'-haq 'snake' (P 179); Bur tol ~ tul 'snake' (Blažek 1989a). Starostin (S 61) posits SC *(wHv_r)-h_wv_lv 'snake, worm, leech' (NC & ST & Yen).
95. Add: ND: Eyak či-at-q 'frog', Tlatskanai swa-xal-xel, Kato č'a-hal, Navaho č'a_l id. (NDE)
96. Starostin (S 47) posits SC *q'(w)V_rq'wV 'crane', based on NC & OChin *g(h)ak^w 'crane'. My reconstruction assumes probable initial **q- (> Basque kh-), assimilated to glottal consonant in the suffix in NC.
97. Starostin (S 155) posits SC *pV_rV 'bee' (NC & ST), compared with Nost *p'ar(HV) 'bee'. Multilateral comparison with Basque and Burushaski indicates 'butterfly, moth'.
98. Add ND: *c'ix^w 'mosquito'; Eyak c'iyux, Digrib tθ'ih, Navaho c'ii_{ii} id. (NDE). Subtract, perhaps, some of the ST forms, if ST *š_{rik} belongs with no. 100, per Starostin (S 174).
100. Starostin (S 174) has SC *šErV 'louse; worm, helminth', compared with Nost */s/aj_rV 'nit, louse'. Peyros (IP 20) compares further AN *li(n)-t'a[?] 'nit' and Mon-Khmer *caj 'louse'.
101. Starostin now segments the NC form as *t'ah-nā (S 185), and compares it with Nost *t'aj_v 'louse'; if so, it is a different etymon entirely.
103. Cf. Nost *yoš_v 'branch' (IE & AA & ?Alt; Illič-Svityč 1967: 333).
104. Starostin (S 112) posits SC *A_{Ap}E 'leaf', and compares it with Nost *laj_pV id.
106. Phonology is discussed in the section "The Compression Theory of prefixes."
108. Starostin (S 159) compares ST *p-lai-ŋ 'full' with Nost *p'alV 'many, full'. (Clearly, though he segments *p-lai-, Starostin regards *p- as part of the root, so it is another example of compression prefixes.) Peyros (IP 19) further compares AN *pel- 'to fill' and Mon-Khmer *PV_i 'replete / sytyj'.
112. Add Burushaski: Werchikwar khul 'all, whole / ganz' (Blažek 1989a).
114. Boisson (BSum 186) gives Sum gur₄, gur₄-ra, kur₄ 'thick', also 'heavy'. Bomhard (AB 262) compares Sum gur₄ 'thick' and Nost *k'ur-/*k'wor- 'to be heavy' (IE & AA), repeated by Boisson (CE 80).
121. Starostin (S 187) posits SC *dwVmV 'dark, black' (ST & Yen), compared with Nost *t'umV 'dark'. Peyros (IP 26) compares further AN *qi-tem 'black', *dendem 'dark', Mon-Khmer *(Cə)dVm id. Rühlen & Shevoroshkin (LCMA 113) compare Nost *t'umV with Amerind *t'um-ak 'dark'.
123. Starostin (S 3) now posits NC *bHūV 'grayish-brown', and compares it with Nost *bofa id. Boisson (CE 210) compares Sum bab-bar 'white, shining' with Bur bur- 'white', and forms in AA.
124. Starostin (S 13) gives SC *c'ArV (~ *st'ArV) 'pale, white, yellow' (NC & ST), compared with Nost */caj/rV id.

125. Boisson (CB 72) compares Sum sig, with Berber *zig-zaw 'green', Burushaski, etc.
126. For ST *-m, see "Phonology: Some special cases."
127. Starostin (S 50) compares ST *Kri 'old' with Nost *kirHV id. (N 165). Ruhlen & Shevoroshkin (LONA 43) compare Nost with Amerind *keri 'old'.
128. Starostin (S 208) posits SC *swEnV 'year; old' (NC & ST & Yen), and compares it with Nost (*zUnE per Dolgopolsky). Shevoroshkin (VS 98) compares SC, Nost, and Amerind. Boisson (CB 122) compares Sumerian, SC, and Nost. For -m- in Sum sumun, see "Phonology: Some special cases."
131. Boisson (CB 106) compares Sum ur with Nost and Burushaski. He notes that Eric de Grolier has compared Sum and Bur.
132. Starostin (S 121) proposes SC *mVn-XV 'man, male' (NC & ST & Yen), and compares with Nost *mānV id.
133. Starostin (S 23) proposes SC *KenTwV 'man, male' (NC & Yen), and compares it with Nost *gāndu 'male' (N 79).
134. Starostin (S 60) gives SC *qwEnV 'woman' (assuming feature metathesis or assimilation to **qEnwV = **qEnV, see "Phonology: some special cases"), and compares with Nost *kūni 'wife, woman'. Ruhlen & Shevoroshkin (LONA 54) compare Nost with Amerind *kuan 'wife, woman, girl' (probably from older *kuna; Shevoroshkin also gives Amerind *kuni, VS 87).
- 138-149 (Pronominal roots). Pieces of the multilateral picture are found in several earlier sources, notably: Blažek 1989a, Čirikba 1985, Nikolaev 1988 & 1989, Ruhlen 1989a, Shafer 1952, Shevoroshkin 1989 & 1990, Starostin 1982, 1984 & 1989, Tailleur 1958, and Trombetti 1926.
138. Blažek (1989a) analyzes ST *ṇā as a compound of two pronominal roots: *nV + *Ka. Shevoroshkin (UV 32) compares Salish *ṇa 1st p.
139. Ruhlen (1989a) would add Nahali ṣuo (ṣō) 'I'. (Kuiper 1966: 69 compared Nahali & ST.) Shevoroshkin (UV 31) compares SC with Salish *s-, *cá 'I'.
140. Add Sum -me 'our' (Boisson, CB 205, compares Sum with Bur and Nost *mā 1st pers. pl. incl.).
142. Shevoroshkin (UV 33) would add Salish *wV 'thou'.
143. Shevoroshkin (UV 34) compares SC with Salish (Squawish) ʔax^w (subj. 2nd pers. sg.) and Algic *k'V (2nd pers.).
144. Boisson (CB 190) compares Sum instead with Nost *t'i/*Si 'thou'.
145. Cf. also Nahali nē 'thou', nē, nēne 'thy'; Drav *(n)In/*nin-id.
148. Add NC *č^we-mV 'how many': Andi čō-m, Avar čā-n 'combien' (NC 4; Dumézil 1933: 60).

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John Bengtson

In some of my earlier articles (Bengtson 1990a, 1991) I have begun to develop the hypothesis of a "Macro-Caucasian" phylum of languages, including Basque, (North) Caucasian, and Burushaski. (There is also fragmentary evidence for other languages belonging to this phylum, now extinct, such as Iberian, Aquitanian, and others in Europe and western Asia.) The following etymologies are intended to further elaborate the Macro-Caucasian hypothesis.

It is further assumed that Macro-Caucasian is one component of a larger and more ancient entity, the Dene-Caucasian (= Sino-Caucasian: see Bengtson 1991 and Starostin 1984) macro-phylum, as noted in the notes to some of the etymologies.

[1-16: Parts of the body]

1. Basque **kasko** 'head, skull, summit';

Caucasian ***kʷi**[1]**jkʷV** 'skull, back of the head' (NCR): Agul gurgaH 'skull', Lak **kʷark** 'top' (Yen #41).

§ Dene-Caucasian: Starostin (Yen #41) compares Cauc and Yen ***kəŋga** 'head'.

2. Basque **be-koki** 'forehead, crown, nape';

Burushaski (W) -**kAk** 'crown, top of the head'.

§ Dene-Caucasian: cf. Tlingit **kak**, 'forehead', Navaho -**kaaʔ** 'surface, on top of' (P #54). As elsewhere, Basque **be-** is a common prefix, mainly in names of body parts. (Cf. #10, 14, 29).

3. Basque **a-dar** 'horn; branch';

Caucasian ***kʷVrV** 'horn' (NCR);

Burushaski -**ltur**, **tur** 'horn'

§ Cauc **kʷ** is a lateral affricate [ʎ]. (See phonological note, following etymologies.)

4. Basque **khuma** 'mane, horsehair';

Caucasian ***qʷamhā** 'long hair, mane': Andi **qʷāw** 'coiffure', Lak **qʷama** 'mane', etc. (NCR, SZ 69 #23);

Burushaski **khāma**, **qāma** 'felt' (fabric made of animal hair).

§ Nikolaev (SZ 69 #23) attributes Greek **komē** 'long hair, mane' (English **comet**, etc.) to a (Macro-)Caucasian substratum.

5. Basque **a-hur** 'hollow of the hand, fist';

Caucasian ***kʷilʷV** 'hand': Archi, Udi **kul**, Batsbi **kor**, etc., id. (NCR, Trub 277 #67).

§ Basque **h-** regularly corresponds to Cauc **k-** (=kʰ).

6. Basque **hama-r** 'ten';

Caucasian *xamhV 'hand, handful'.

§ The relationship of 'hand' and 'ten' is well established (cf. Bengtson 1987).

7. Caucasian *HölggV 'stomach' (NCR);
Burushaski -ul, (W) -ul 'belly, abdomen';

8. Basque sab-el 'stomach, abdomen';
Caucasian *3/a/bV 'kidney, liver: Avar -zo 'kidney', Tsez žubi, Hunzib šebu 'liver' (SC #1.23, Komm 459 #72);
Burushaski -A-so 'kidney'.

§ Dene-Caucasian: Starostin (SC #1.23) compares Cauc with ST *č(h)uap 'lung' and Yen *tVp-Vl 'spleen'. Note suffix -l in Basque and Yen.

9. Basque gibel 'liver';
Caucasian *lü[h]ükV / *[h]ülüükV = *čwähäIV / *hālāčwV 'liver': Hatti tabala-in, Lak tilik', Avar t'ul, Urartean zel-de id. (NCR, Iv #49, HU #116).

§ Dene-Caucasian: cf. Na-Dene: Haida ħ'ak'ul, Tlingit ħ'uGu, Tsetsaut a-i'q' 'liver' (NDE). The Basque form would seem to require a protoform such as *k'ühVIV, with *H> *w> b. Metathesis is very common in Macro-Caucasian.

10. Basque be-ha-zun, be-ha-ztun 'bile, gall';
Caucasian *čwūmhi = *čwām7i 'bile, gall, anger': Avar čin id., Hinukh seme 'bile, liver', Chechen stim 'bile', etc. (NCR, Yen #67);

Burushaski čemI-lip 'bitter, poisonous, poison'.
§ Chirikba (BNC #53) compared Basque and Cauc. (Note the parallel development to st in Basque dialect and Chechen.) Dene-Caucasian: Starostin (Yen #67 and SC #33) compares Cauc with ST *sīn 'liver' and Yen *sej id. Compare further Na-Dene: Eyak -saht, Athapaskan *-sad? 'liver' (NDE, K #36).

11. Basque zil 'navel; penis', zil-kho, zil-bor 'navel';
Caucasian: Tsakhur žil 'navel'.
§ Bouda (BKE #31) compared Basque and Cauc. Dene-Caucasian: cf. Na-Dene: Hupa cōl? 'female private parts', Navaho -cil '(outer) vagina' (P #39).

12. Basque iztai 'anus', izte-r, iste-r 'thigh';
Caucasian: Adyghe (Circassian) swta 'Hinterer, Genitalien';
Burushaski: -Aš-ig, (W) -Ašt-ig 'small of the back, loins, reins, waist'.

§ The entire comparison was made by Bouda (TK #204 and BE₁ #19), where he compared further ST: Tibetan sta-zur 'Hüfte, Hüftknochen'.

13. Caucasian: NECauc *k'wirV 'foot': Hurrian ukre, Urartean gura id., Lezgi k'ur 'foot, hoof', Archi k'wiri 'animal's foot', etc. (HU #141);

Burushaski kūr 'fetlock', (N) kūro 'hoof' (of a horse);
cf. Shina khūro 'hoof' (from Burushic substratum).

§ Dene-Caucasian: cf. Tibeto-Burman *kɾay 'foot' (STC #38); Sumerian ġir, ġiri 'foot'.

14. Basque bi-zi 'life, alive, to live';
Caucasian *šip^{WV} 'soul, breath': Lak ših 'breath, vapor',
Adyghe, Kabardian, Ubykh p-sa 'soul, breath', Hurrian šey-iri, Urartean
šu/oḡ-ori 'alive' (SZ 72 #40, HU #74).

§ Bouda (BK #42) and Chirikba (BNC #33) compared
Basque with NWCauc. Dene-Caucasian: Starostin (SC #7.7 and S #169)
compares Cauc with ST *suā 'breathe, live' and Yen *du?(X) 'smoke'.

15. Basque ziho, zigo 'tallow, tallow candle';

Caucasian *c'ēnX^V / *c'ēnX^{WV} 'fat' (adj.);

Burushaski (W) zAy 'cooked fat'.

§ The resemblance to Spanish sebo, Latin sēbum
'tallow' would appear to be chance convergence. (Spanish Basque also has
a loanword, or loan-blend, sego id.) Dene-Caucasian: cf. ST:
Tibeto-Burman *sa·w 'oil, fat, grease' (STC #272).

16. Basque khorotz, gorotz 'excrement, dung';

Caucasian *k'urč^V 'dung' (of small animals) (NCR);

Burushaski yŭrAš 'excrement, dung'.

§ Bouda (BKE #130) compared Basque and Cauc.

[17-30: Nature and flora]

17. Basque harri 'stone';

Burushaski kar-kat, ya-karr 'stony ground'; cf. qhüye
= qhüře 'pebble, gravel'.

§ One might suggest that forms such as Armenian
k'har 'stone', English cairn (from Celtic), etc., could be due to
borrowing from Macro-Caucasian. (Cf. Trombetti Basca #153, Hubschmid
1960: #22; Bleichsteiner 1930: 320-21 #7.)

18. Basque itsaso 'sea';

Caucasian: NWCauc *šə / *čə 'salt' (Komm 457 #40);

Burushaski šau 'oversalted' (of food).

§ Bouda (BE₁ #14) compared Cauc and
Bur. Dene-Caucasian: Starostin (SC #5.11) compares Cauc with ST:
Kuki-Chin *m-čī 'salt' and Yen *čə? id.

19. Basque oz 'sky', Ost-egun 'Thursday' (Jovis dies: egun
'day');

Caucasian *ʔamšV 'sky, sky god': Tabasaran amš 'cloud', Lak
aš 'sky god; nobleness, conscience', Hurrian ēšə, Urartean ēšə 'sky',
Hatti eš-tan 'sun god' (HU #31, Iv #11).

Burushaski aiyAš 'sky'.

§ Dene-Caucasian: Bleichsteiner (1930: 319 #2)
compared Bur and Yen. Starostin (Yen #138) and Ivanov (Iv #11) compare
Cauc and Yen *ʔes 'god, sky'. The purported derivation of Bur aiyAš from Old
Indic ākāśa- (Morgenstierne in Lorimer 1935: xxii) seems less plausible than a
Macro-Caucasian origin. Note the resemblance to Germanic *ansu- 'a god' (chance
resemblance, archaic residue, or substratum?)

20. Basque *u-hin* 'wave';
Caucasian **xünʔi* 'water': Avar *šin*, Dargwa *šin*, Tsakhur *šan* id.
(NCR, Yen #61).

§ In an earlier paper (NSC #84) I compared Cauc with Basque *i-hin-tz* 'dew'. Dene-Caucasian: cf. Yen **xur*₁ 'water', Na-Dene: Tlingit *hin* 'fresh water', Athapaskan **xanʔe* 'river'.

21. Basque *hosin* (ho-sin) 'well, pool';
Caucasian **ʔwīnccV* = **ʔwīnīccV* 'spring, well': Andi *inči*,
Hatti ar-inna, Khinalug *māc*, Dargwa *šiniz*, Chechen, Ingush *hast*
id. (NCR, SC #5.9, Yen #128, Iv #3).

§ Dene-Caucasian: Starostin (Yen #128, SC #5.9)
compares Cauc, Yen **sin-* 'spring', and ST **ceŋH* 'well, cistern'.

22. Basque *horma* 'ice';
Burushaski *yAmu*, (N) *gAmu* 'ice'.
§ Both from **HormV*.

23. Basque *i-tzal* 'shade, shadow';
Burushaski *-yAl*, (W) *-nAl*, *nāl* 'shade, shadow'.

24. Basque *zur* 'wood';
Caucasian **cʷwīthV* 'tree, stick': Hurrian *sar-mə* 'wood',
Urartean *cʷarə* 'orchard', Avar *cʷul* 'wood, firewood', Batsbi *tʷaw*
'branch' (S #213, HU #99);

Burushaski *šAr* 'branch, bough'.
§ Bouda (BKE #19) compared Basque and
Cauc. Diakonoff and Starostin (HU #99) note Armenian *cař* 'tree',
probably from Macro-Caucasian substratum. (Cf. note to no. 17.)

25. Basque *oi-han* 'woods, forest';
Caucasian **fanV* 'mountain, shady slope of a mountain':
Hurrian *fâvane*, Urartean *vâvâne* 'mountain', Khwarshi *hum* id., Batsbi,
Chechen *hun* 'forest' (NCR, HU #13);

Burushaski *hūn* 'wood, timber' also (W) 'upstream, up
valley'.

§ Bouda (BKE #77) compared Basque and Cauc, and
(Burusho #189) Cauc and Bur.

26. Basque *baso* 'forest', *basa-* 'rustic, savage';
Caucasian **vāce* 'mountain': Akhvakh *beča*, Bagwali, Karata,
Tindi *besa* id. (NCR, Trub 257).

27. Basque *sasi* 'bramble, thicket';
Caucasian **čāce* 'prickle, burr': Tindi *zaza* id., Lak *čac*
'wild rose', Chechen *zez* 'larch', etc. (NCR, Yen #144);
Burushaski *čaš* 'thornbush, thorns'.

§ Dene-Caucasian: Starostin (Yen #144) compares
Cauc with Yen **seʔs* 'larch' (note same meaning in Chechen above).

28. Caucasian **qorhā* / **qorhā* 'pea': Dargwa *qara*, Lak *qiuru*
id. (NCR, Burusho #46);
Burushaski *gArk* 'peas', *girgir* 'a kind of pulse'; (W)
yArA-š, *yArA-š* 'a kind of pulse or pea'.

§ Bouda (Burusho #46) compared Bur and Cauc, and further ST: Tibetan **greu** 'peas'.

29. Caucasian ***xwin?** 'seed': Archi **xwin** = **hwin**, Lezgi **fin**, Avar **xon**, Andi **šen** id. (NCR, Trub 240, Komm 443); Burushaski **yuno**, (N) **gono** 'seed, semen'.

§ Bouda (BK #69) compared Cauc and Basque **bihi** (bi-hi) 'seed, grain', noting loss of final -n in Dargwa **hwi**, Batsbi **xu**, Chechen **hu** 'seed'. This is only possible if Basque bi- is a fossilized class prefix here, as is well established in words for body parts and body fluids (cf. #2, 10, 14, above, and several examples in my other papers: NSC #8, 13, 31, 39, 48; MC #10, 12, 14); and if the loss of -n in Basque can be assumed (-n is generally retained).

30. Basque **sagar** 'apple';

Caucasian: Lezgi **čuxwer**, Agul **šixer**, Tabasaran **šexer**, Tsakhur **šixa** 'pear' (Trub 276 #46);

Burushaski **šuyuri**, **šoyori** 'a kind of pear' (corresponding forms in Shina and Khowar, from Burushic substratum).

§ Bleichsteiner (1930 #71) compared Bur with Cauc and Basque, and further cited Kartvelian forms such as Georgian **shali** 'pear'. Trombetti (Basca 154) compared Basque with Albanian **shegë** 'pomegranate', positing a Macro-Caucasian substratum in the Balkans, which is borne out by a few other borrowings in Albanian and other Balkan languages.

[31-36: Animals]

31. Basque **biga** 'heifer' (18-30 months old);

Caucasian ***hūpūk**, ***w** = ***pānāk**, ***wē** 'small horned stock': Hunzib **biḱ** 'ewe', Archi **baḱ** 'ram', Chechen **bož**, Batsbi **bḱok** 'billy-goat', Adyghe **xwə-bya** 'herd of sheep, cattle' (NCR, KL #8).

32. [Spanish **becerro** 'calf, young bull' cf. Elcock 1960: 179];

Caucasian ***wēlš(w)ē** / ***bēlš(w)ē** 'calf, bull calf': Batsbi **borš** id., Chechen **börša** 'male', Archi **boš-or** 'man, husband', Urartean **wāša** 'men, menfolk', etc. (NCR, HU #15);

Burushaski **bušōšo**, (W) **bōšo** 'calf'.

33. Basque **a-xuri** [**ašuri**] 'lamb';

Caucasian: Hatti **wa-zar-** 'ewe' (Iv #69).

34. Caucasian ***?wīg^wv** 'lamb' (NCR);

Burushaski **ēlgit** 'she-goat' (over one year old, which has not yet borne young), (W) **halkit** 'a female goat' (over one year old).

35. Basque **barakuillo**, **barakuilu** 'snail';

Caucasian ***hōwōrk^wv(iv)** = ***whVr-hwiv** 'snake, worm': Chechen **bōghalla**, Tsez **bikori** 'snake', Andi **berka** 'snake, worm', Lak (dial.) **baīrcalu** 'snail', Hurrian **ḫali** 'worm', etc. (NCR, HU #119, S #61);

Burushaski **yArkAs**, **yArqAs**, (W) **yAlkAs** 'lizard' (cf. Shina **kīrkAlī** id.).

§ Dene-Caucasian: Starostin (S #61) compares Cauc with ST ***p-rūl** 'snake', Yen ***(h)ur₁ol** 'leech'.

36. Basque *i-thaĩ* 'tick' (on cattle), *thiĩa* id. (cf. Spanish *tiñoso* 'scabby, mangy');
Caucasian **t'anhV* = **t'ahnā* 'nit' (NCR, S #185).

[37-44: Society]

37. Basque *maño* 'masculine / macho';
Caucasian **mVnXV* 'man, male' (SC #2.4, S #121);
Burushaski *mən*, *mən-ik* 'people, some people, any people, someone, anyone; who?' (-ik is a collective or plural ending; the pronominal development in Bur is parallel to, e.g., French *on* 'one' (from *homme*), German *man* id. (from *Mann*)).

§ Dene-Caucasian: cf. ST **nēm* 'man' or **mi-n* 'man, person', Yen **pix-* 'man', Sumerian *mu*, *me* 'man' (according to various proposals: NSC #132, SC #2.4, S #121).

38. [Spanish *marra*-no 'pig', Catalan *marrà*, *wardà* 'ram', orig. 'male animal': Elcock 1960: 179];
Caucasian **mīrgV* = **mīrñV* 'male, man' (NCR, S #114).

39. Basque *ema-zte* 'woman, wife';
Caucasian **cVdV* / **čVdV* 'female': Chechen *stē*, Ingush *se*, Dargwa (dial.) *cade* id., Hurrian *ašti* 'woman, wife' (NCR, HU #86).
§ Dene-Caucasian: cf. Na-Dene: Haida *šaadaa*, *šat* 'woman', Tlingit *šAt* 'wife', Eyak *syet*, *syot* 'woman', Navaho *?as-3ani* id. (NDE).

40. Basque *ema-kume* 'woman';
Caucasian **qVnV* = **q(w)änV* 'woman': Archi *Xom*, Agul *Xumb-ar*, Lak *qami* 'women', Kryts *Xin-ib* 'woman, wife' (NCR, Yen #24);
Burushaski *quma*, *kuma* 'concubine'.
§ Dene-Caucasian: Starostin (Yen #24) compares Cauc with Yen **qVm-* 'woman'; cf. further Sumerian *gēme* 'maiden, slave' (NSC #134, Boisson 1989 #218).

41. Caucasian **šīnhV* 'woman': Archi *šenne* = *henne* 'female', Udi *Xuni* id., *Xina-r* 'girl, young woman', Dargwa *xunu-l* 'woman', etc. (NCR, Trub 239, Komm 443);
Burushaski *yeni-š*, (W) *yende-š* 'queen, ranee, Tham's wife'.
§ Bouda (BE₂ #33) compared Cauc and Bur.

42. Basque *alha-ba* 'daughter';
Caucasian: Hurrian *ela* 'sister' (Diakonoff 1971: 61).
§ Note that Basque *seme* 'son' (NSC 136) corresponds to Hurrian *šeni* 'brother', which is entirely parallel to 'daughter : sister' (HU #96).

43. Basque *a-hiz-pa*, *a-iz-ta* 'sister' (woman speaking);
Caucasian **ʔiCCV* 'brother, sister': Bezhta *is* 'brother', *isi* 'sister', Lak *ušu* 'brother', *šu* 'sister', Tabasaran *čVi* 'brother', *či* 'sister', etc. (NCR, Yen #140);
Burushaski *-Ačo*, *-Aču* 'sister' (woman speaking), 'brother' (man speaking); also 'woman's sister-in-law', 'man's brother-in-law'.
§ Bleichsteiner (1930: #60) compared Bur with Cauc and Basque. Bouda (BKE #65) compared Basque and

Cauc. Dene-Caucasian: Starostin (Yen #140, SC #2.1) compares Cauc with Yen *b-is(a) 'brother, sister' and ST *čəjH 'elder brother or sister'.

44. Basque *ize*-ba, *iza*-ba 'aunt' (father's or mother's sister);
Caucasian: NECauc *-ilčwi : Hurrian *šali*, Urartean *səla*, Lak d-uš 'daughter', Dargwa r-ursi 'girl', Avar r-učč-abi 'women', Chechen d-ēca 'aunt' (HU #94).

[45-53: Artifacts]

45. [Greek *dokó*-s 'wooden beam', from Macro-Caucasian substratum: SZ 67-68 #10];
Caucasian *d^wəq, ^wv = *daq, ^wv 'beam, log': Dargwa *duq*'i id., Chechen *duq*'u id., Tabasaran *duq*'a-n 'pole' (NCR, SZ 67-68 #10);
Burushaski *daqo*, *qako* 'pillar, post, pole', (w) 'cane, walking stick'.

46. Caucasian *d^werxV / *d^werx^wV 'stick': Lak *ttarx*, Dargwa *dirxa* id. (NCR, Trub 239);
Burushaski *darōyo* 'stick, staff, rod'.

47. Caucasian *p^wəIn33V 'twig, bar' (NCR);
Burushaski *pīnc*, *pīnc* 'stick' (for games, such as polo).

48. Basque-Aquitainian *kala 'castle, city': *Calá*-gurri 'red castle', Bourdi-*gala* 'Bordeaux = city of iron'; Greek *kaliā* 'wooden cottage' (from substratum); ? Souletin Basque *kalola* 'hut, cabin' (Trombetti: Basca #194, SZ 69 #16);
Caucasian *qəlV 'house, shed': Dargwa *qali* 'house', Agul *Xal* id., Avar *hor* 'hayloft' (NCR, SZ 63 #21).

49. Basque *e-tze*, *e-txe*, *i-txe* 'house', *e-txo*-la 'hut, cabin';
Caucasian: Chechen, Ingush, Batsbi *c'a*, Khinalug *c'wa*, etc. 'house'.

§ Trombetti (Basca #77) compared Basque and Cauc, also Sumerian *es* 'house'. Bouda (BK #57) compared Basque and Cauc.

50. Caucasian *hāngV 'hole, window' (NCR, S #29);
Burushaski *hiq* 'door, gate'.

§ Dene-Caucasian: Starostin (S #29) compares Cauc with ST *khaH 'opening' and Yen: Ket *ag*-di 'mouth cavity'.

51. Basque *pata*-sa 'bottle';
Caucasian *pat^wV 'a kind of vessel' (NCR, S #147);
Burushaski *pāta*, (w) *pāte* 'wooden dish or bowl'.
§ Starostin (S #147) compares Cauc with ST *puT 'a big basket'.

52. Basque *kaiku* 'wooden bowl';
Caucasian: NECauc *q^wāq^wV 'basket, vessel' (SC #6.7).
§ Dene-Caucasian: Starostin (SC #6.7) compares Cauc with ST *kuk / *kuak 'basket, vessel' and Yen *qək- 'spoon, scoop'.

53. Basque -*kuts*- 'sleeve' in *ma-kuts*-ik 'en mangas de camisa';

Caucasian *q'q, ^WVič, ^WV 'sleeve, elbow, armpit' (NCR);
Burushaski (W) quš 'elbow of a garment'.

[54-65: Descriptives and verbs]

54. Basque **zuzen** 'right (rectus), right
(dexter), correct, straight, just' etc.; cf. **zin** 'oath, true';
Burushaski **chAn** 'straight, direct, true, right, correct'.

55. Caucasian *HVč, V / *HVč, ^WV 'good' (NCR);
Burushaski **šua** 'good, well'.

56. Basque **a-berats**, **a-beratz** 'rich, wealthy';
Caucasian *berčV 'rich, a god' (NCR);
? Burushaski **bāriš** '(miscellaneous?) things' "This
supplementary word has no meaning of its own; it only conveys a vague
sense of multiplicity." (Lorimer 1935-38: III: 62).

57. Basque **txar** [čar] 'bad, weak';
Caucasian: Lezgian *č'iri-: Lezgi, Tabasaran č'uru, Kryts
č'irä 'wild', Urartean c'ir-ab 'empty, uninhabited', Agul č'ire-r
'bad' (HU 103).

58. Basque **samin** 'bitter'
Caucasian: Hatti **zzibina-** 'sour' = ? Cauc *himič, č, ^WV id.:
Lezgian *?imč^W-r, Nakh *must-i 'sour' (NCR, Iv #81).

59. Caucasian *c, c'ēk, k, ^WV 'sour' (NCR);
Burushaski šUq-ur-Um 'sour'.
§ Dene-Caucasian: cf. ST: Tibeto-Burman *skyur
'sour' (STC #42).

60. Basque **beltz**, Aquitanian **beles** 'black';
Caucasian *č^W51šč, V 'black' (NCR).

61. Basque **i-za-n** 'to be, to exist';
Caucasian *?o-swV 'to sit': Hatti -š- 'to sit, to set',
Urartean aš- 'to sit; to put', Batsbi, Chechen -is- 'to stay', Adyghe sa
'to exist, to sit, to dwell' (SC #49, S #41, Iv #34, HU #79, BK #18);
Burushaski **ōs-**, **ōš-** 'to set'.
§ Bouda (BK #18) compared Basque and
Cauc. Dene-Caucasian: Starostin (SC #49, S #41) compares Cauc with Yen
*-vsV 'to sit'.

62. Basque **i-min-i**, **i-miñ-i** 'to put, to place, to arrange';
Caucasian *?i-man- 'to stay, to be': Hurrian **mann-**, Urartean
man- 'to be', Lezgi **ama**, Tabasaran **imi-**, Archi **im(a)-** 'to stay' (HU
#19, S #115);
Burushaski **-mAn-**, **-mAn-As** 'to be, to become'.
§ Dene-Caucasian: cf. ST: Midzu, Meyol **mān** 'to
rest'.

63. Basque **aldera-tu** 'to separate, to remove';
Caucasian *?ōlt, ^WVr- 'to tear down, to tear off' (NCR);
Burushaski **iltUr-As** 'to pull down, dismantle, pull to
pieces, undo'.

64. Basque *entzu*-n 'to hear, to listen';
Caucasian **ʔamc*-V- 'to know, to see': Hurrian *anz*-an-uy- (caus.) 'to declare(?), to promise', Dargwa *umc*-es 'to search', Hunzib -a^{nc}a 'to know', NWCauc **ʔwa* 'to know' (NCR, HU #29, Trub 279, Komm 461).

§ The presumed derivation of Basque *entzu*-n from Latin, like that of *hun*, *hon* 'good' from *bonu*-, is fanciful (cf. Bouda: BKE 54). Dene-Caucasian: Starostin (SC #30) compares Cauc with ST **siə*, Yen **ʔvt*- 'to know'. Cf. further Na-Dene: Athapaskan **c'a(n)*- 'to hear' (NDE), Sumerian *zu* 'to know'.

65. Basque *j-aki*-n 'to know';
Caucasian **Hiq*-V / **Hüq*-V 'to know' (NCR);
Burushaski -*hAki*-n 'to learn'.

§§ Phonological Note:

Some indications of regular phonological correspondences in Macro-Caucasian and Dene-Caucasian are given in my earlier articles (1990a, 1991). However, since the corpus of etymologies is still rather small, some correspondences are still uncertain.

The correspondences involving the rich Caucasian array of laterals are elusive, since etymologies including all three branches (Basque, Cauc, Bur) are rare. But note the following correspondences of Basque *g* to Cauc **k*:

- a. Basque *gibel* 'liver' = Cauc **k*-*vähälV* id. (#9);
- b. Basque *biga* 'heifer' = Cauc **pähäk*-*we* 'small horned stock' (#31);
- c. Basque *a-ragi* 'flesh' = Cauc **rük*-*k*-i id. (NSC #44).

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Abbreviations

Basca = Trombetti 1926
BE₁ = Burushaski Etymologien = Bouda 1954
BE₂ = Burushaski Etymologien II = Bouda 1964
BK = Baskisch und Kaukasisch = Bouda 1948
BKE = Baskisch-Kaukasische Etymologien = Bouda 1949
BNC = Basque-North-Caucasian = Chirikba 1985
Bur = Burushaski
Buruscho = Bouda 1952
Cauc = Caucasian = (North) Caucasian
HU = Hurro-Urartian = Diakonoff & Starostin 1986
Iv = Ivanov 1985
K = Krauss 1964
KL = Kul'turnaja leksika = Starostin 1985
Komm = Kommentarii = Starostin 1987
MC = Macro-Caucasian = Bengtson 1990a
N = Nagir (dialect of Burushaski)
NCR = North Caucasian Roots = Nikolaev & Starostin 1987
NDE = Na-Dene Etymologies = Ruhlen 1989
NECauc = Northeast Caucasian = Nakho-Daghestan
NSC = Notes on Sino-Caucasian = Bengtson 1991
NWCauc = Northwest Caucasian = Abkhazo-Adyghan
P = Pinnow 1966
S = Starostin 1989
SC = Sino-Caucasian = Starostin 1984
ST = Sino-Tibetan
STC = Sino-Tibetan Conspectus = Benedict 1972
SZ = Severokavkazskie zaimstvovaniija = Nikolaev 1985
TK = Tibetisch-Kaukasisch = Bouda 1950
Trub = Trubetskoy 1987
W = Werchikwar (dialect of Burushaski)
Yen = Yeniseian
Yen = Yeniseian external relations = Starostin 1982

John Bengtson

This is the first extensive attempt to catalog the regular phonetic correspondences of the Macro-Caucasian linguistic phylum, which was first proposed, as such, only within the past year.¹

It is clear that the complete analysis of Macro-Caucasian phonology is many years in the future, as it has taken long periods of time for the corresponding process in Indo-European and other language phyla and families. Macro-Caucasian presents special difficulties, since Caucasian languages are known to possess the most complex consonantal systems in the world, and considerable complexity is reflected in the Proto-Caucasian reconstructed by Nikolaev and Starostin. These reconstructions have been simplified here, according to recent suggestions by Starostin (1990).

The following examples are selected to include at least two occurrences of a matching.²

1. Bsq **phintz(a)** 'membrane': Cauc ***penc** 'V' 'eyelash': Bur **-pfinišo** 'hair' (NSC 14).
2. Cauc ***p^wətV** 'dirt': Bur **pfet-in** 'ashes' (NSC 78).
3. Bsq **phata-sa** 'bottle': Cauc ***pat** 'V' 'vessel': Bur **pfAta** 'bowl' (Etm 51).
4. Cauc **pVsV** 'night': Bur **bAsa** (MC 38).
5. Bsq **biha-r** 'tomorrow': Cauc ***pəkV** 'dawn' (Rutul **biga** / **baga** 'tomorrow', MC 39).
6. Bsq **biga** 'heifer': Cauc ***h^hpāñ** 'WE' 'small stock' (Hunzib **biñ** 'ewe', Etm 31).
7. Bsq **bortz, bost** 'five; hand': Cauc ***b^hrcV** 'paw, gammon': Bur **bAc-in** 'thigh' (NSC 30).
8. Cauc ***būrV** 'gray, brown': Bur **bur-um** 'white, gray' (NSC 123).
9. Bsq **a-berats** 'rich': Cauc ***berčV** id.: Bur **bāriš** 'things' (Etm 56).
10. Bsq **bero** 'hot, warm': Bur **bAbAr-um** id.
11. Bsq **mihi** 'tongue': Cauc ***mēlc** 'i' id.: Bur **-melč** 'jaw' (NSC 1, MC 8).
12. Bsq **nuthur** 'snout': Cauc ***mərñ** 'V' 'nose, beak': Bur **-multur** 'nostril' (NSC 23, MC 9).
13. Bsq **min-** 'to put, place': Cauc ***ʔi-man-** 'to stay, be': Bur **-mAn-** 'to be, become' (Etm 62).
14. Cauc ***wHerñ** 'V' 'large intestine': Bur **wArk** 'intestinal fat' (NSC 54).
15. Bsq **baso** 'forest': Cauc ***wice** 'mountain' (Etm 26).

16. Bsq **barakuilu** 'snail': Cauc ***wHōrā^hWVlV** 'snake, worm' (Lak **baIrcalu** 'snail', Etm 35).
17. Bsq **busti** 'to wet': Cauc ***wic^hWV** 'wet'.
18. Bsq **bai** 'yes': Bur **A-wa** id.
19. Bsq **i-thañ** 'tick': Cauc ***t,ānhV** 'nit' (NSC 101, Etm 36).
20. Bsq **e-thorri** 'to come': Cauc ***7V-t,VR-** 'to run'.
21. Cauc ***t,VlmV** 'stone of a fruit': Bur **tuma** id. (MC 58).
22. Cauc ***7V-t,Wvr-** 'to tear': Bur **tur-** 'to tear, rip'.
23. Bsq **photo-rro** 'vulva': Cauc ***pat^hi** id. (MC 13).
24. Bsq **phata-**: Cauc ***pat^hV**: Bur **pfAta** (= #3 above).
25. Bsq **o-dol** 'blood': Bur **del** 'contents of an egg' (NSC 47).
26. Bsq **a-din** 'age': Bur **den** 'year'.
27. Cauc ***dəq^hWV** 'beam': Bur **dAgo** 'post' (Etm 45).
28. Cauc ***dWern^hWV** 'stick': Bur **dArōyo** id. (Etm 46).
29. Bsq **niga-r** 'tear': Cauc ***newq^hu** 'tear, pus': Bur **nAgei** 'boil' (NSC 6).
30. Bsq **no-r** 'who?': Cauc ***nV** (interrogative root): Bur (W) **a-na** 'where?' (NSC 147).
31. Bsq **a-rraultze** 'egg': Bur **i-rīč** 'kidney' (NSC 51).
32. Bsq **a-rrats** 'evening': Cauc ***-rinñi** id. (NSC 71).
33. Cauc ***remñV** 'cubit': Bur **-riñ** 'hand' (NSC 26).
34. Bsq **sagu** 'rat, mouse': Cauc ***cWarg^hWV** 'weasel, marten, mouse': Bur **čhArge** 'flying squirrel' (NSC 92, MC 52).
35. Bsq **hosin** 'well': Cauc ***2Wini^hCV** id. (Etm 21).
36. Cauc ***c(w)ārñV** 'cow': Bur **chīar** 'steer' (MC 62).
37. Bsq **sasi** 'bramble': Cauc ***cāce** 'burr': Bur **čhAš** 'thorn' (Etm 27).
38. Bsq **bost**: Cauc ***bōrcV**: Bur **bAc-** (= #7 above).
39. Cauc ***nVcV** 'aunt, cousin': Bur **-nco** 'paternal aunt, mother's brother's wife'.
40. Bsq **soiñ** 'body': Cauc ***činHV** 'animal': Bur **šAñ** 'limbs' (NSC 43).
41. Bsq **i-tsaso** 'sea': Cauc (NW) ***ča** 'salt': Bur **šau** 'oversalted' (Etm 18).
42. Bsq **a-berats**: Cauc ***berčV**: Bur **bārIš** (= #9 above).
43. Bsq **zama-r** 'lock of wool': Cauc ***He-c,WemV** 'eyebrow' (NSC 12).
44. Bsq **zan-kho** 'leg, foot': Cauc ***He-c,WemV** 'legbone' (NSC 56).
45. Bsq **zur** 'wood': Cauc ***c,WiñhV** 'tree, stick': Bur **šAr** 'branch' (Etm 24).
46. Cauc ***c,čk^hWV** 'sour': Bur **šūq-** id. (Etm 59).
47. Cauc ***c,iñV** 'eyelash': Bur (W) **šolt** 'eyelid, roof'.
48. Bsq **phintz**: Cauc ***penc^hWV**: Bur **pfīnišo** (= #1 above).
49. Cauc ***HV-č^hWV** 'good': Bur **šūa** id. (Etm 55).
50. Cauc ***mič^hV** 'hoof': Bur **-A-miš** 'finger, toe'.

51. Cauc *moč'V 'beard': Bur muš- 'face' (NSC 16).
52. Bsq hatz 'claw': Cauc *k'wač'e 'paw': Bur qaš
'cubit' (NSC 31).
53. Bsq khorotz, gorotz 'dung': Cauc *k'urč'V id.: Bur yuraš
id. (Etm 16).
54. Bsq a-mets, a-mes 'dream': Cauc *Hnič'wV / *Hč'winV
'night, dream'.
55. Bsq itsu, utsu, utsi 'blind': Cauc *Höč'wV 'dark, blind'.
56. Bsq busti: Cauc *wīč'wV (= #17 above).
57. Bsq txahal [čahal] 'calf, heifer': Cauc *ʔIič'wīlV
id. (MC 65).
58. Bsq txime-leta 'butterfly': Cauc *č'vmV-č'V id.: Bur
čumū-so 'grub, fish insect'.
59. Bsq zaiñ 'vein, nerve': Cauc *sēmHV 'sinew', etc. (NSC
55).
60. Bsq i-zen 'name': Bur sen-As 'named' (NSC 137).
61. Bsq bi-zi 'life': Cauc *sič'wV 'soul, breath' (Etm 14).
62. Bsq iza-n 'to be': Cauc *ʔos'wV 'to sit': Bur ōs- 'to
set' (Etm 61).
63. Cauc *šqlq'IwV 'heel, foot': Bur šog 'sole, track'
(NSC 34).
64. Bsq sahats 'willow': Bur šask id. (MC 56).
65. Bsq e-sne 'milk': Cauc *šynHV id. (MC 66).
66. Bsq gose 'hunger': Cauc *gašī id. (NSC 119).
67. Bsq e-lhu-r 'snow': Cauc *h'wīqV id. (MC 34).
68. Cauc *h'wīnʔī 'seed': Bur yuno id. (Etm 29).
69. Cauc *h'inhV 'woman': Bur yēni-š 'queen' (Etm 41).
70. Cauc *d'werhV 'stick': Bur dArōyo id. (= #22 above).
71. Bsq gibel 'liver': Cauc *h'wāHā1V id. (Etm 9).
72. Bsq a-ragi 'flesh': Cauc *rāh'ī id. (NSC 44).
73. Bsq biga: Cauc *h'pāh'wE (= #6 above).
74. Bsq bargo 'small pig': Cauc *wāIrāh' 'pig, hog' (contra
MC 73).
75. Bsq negu 'winter': Cauc *Hh'wīnī id. (metathesis).
76. Cauc *h'āpi 'leaf': Bur tAp id., du-ltApi-As 'to
wither' (NSC 104).
77. (? Bsq muthur 'snout'): Cauc *mārāh'V 'nose, beak': Bur
-multur 'nostril' (NSC 23, MC 9).
78. Bsq be-larri 'ear': Cauc *1erhIV id. (NSC 8).
79. Bsq hila 'moon': Bur hAlA-ns id. (NSC 72, MC 27).
80. Aquitanian kala 'castle': Cauc *qəlV 'house' (Etm 48).
81. Bsq hatz: Cauc k'wač'e: Bur qaš (= #52 above).
82. Bsq -haur 'self': Bur -khAr id. (MC 6).
83. Bsq a-hur 'fist': Cauc *k'wīlqV 'hand' (Batsbi kor) (Etm
5).
84. Bsq harri 'stone': Bur ya-k(h)arr 'stony ground' (Etm
17).

85. Bsq bi-zka-r 'back': Cauc (Abkh) a-zk^Wa id.: Bur -sqa 'on one's back' (NSC 39).
86. Cauc *čak^WV 'white, yellow': Bur šIq-Am 'gray, green' (NSC 125).
87. Bsq gal- 'to lose': Cauc *ʔi-g^WV1- id.
88. Bsq gose: Cauc gašI (= #66 above).
89. Bsq he-gal 'wing': Bur gAl-gi id. (NSC 32, MC 17).
90. Bsq a-gure- 'grow old': Bur gūro 'grayish' (NSC 127).
91. Bsq sagu, sabu: Cauc *c^Warg^WV: Bur čhArge (= #34 above).
92. Bsq bi-rika 'lung': Cauc *jerk^Wi 'heart' (comparison suggested by V. Blazek).
93. Cauc (NE) k^WirV 'foot, hoof': Bur (N) kūro 'hoof' (Etm 13).
94. Bsq khorotz 'dung': Cauc *k^Wurč^WV id. (Etm 16).
95. Cauc *c^Wēk^WV: Bur šuq- (= #46 above).
96. Bsq i-hin-tz 'dew', u-hin 'wave': Cauc *xän^Wʔi 'water' (NSC 84, Etm 20).
97. Bsq hor 'dog': Cauc (NE) *x^War id. (NSC 87, MC 51).
98. Bsq ziho 'tallow': Cauc *c^WēnxV 'fat' (Etm 15).
99. Cauc *qōtV 'brisket': Bur -qAt- 'side, armpit' (NSC 40).
100. Bsq ema-khume 'woman': Cauc *q^WānV id.: Bur quma 'concubine' (NSC 134, MC 77, Etm 40).
101. Bsq u-khab-il 'fist': Cauc *q^WāIpV 'paw': Bur qAf 'claws' (MC 19).
102. Bsq mokho 'beak, face': Bur mōq-Iš 'cheek' (NSC 5).
103. Bsq khur-lo 'crane': Cauc *q^Wi^Wri-q^WV id.: Bur qArū-fo 'heron' (NSC 96, MC 53).
104. Bsq a-khai^Wn 'tick': Cauc *q^Wi^Wn^WV 'louse': Bur khīn 'flea' (NSC 99).
105. Bsq khuma 'mane': Cauc *q^Wām^Whā id.: Bur qAma 'felt' (Etm 4).
106. Bsq (Souletin) e-khei 'material': Cauc *q^WajV 'thing'.
107. Cauc *š^W2lq^Wi^WV: Bur šoq (= #63 above).
108. Bsq gogor 'hard': Cauc *G^Wērv 'stone': Bur yoro id. (MC 31).
109. Bsq gal-tzar 'side, armpit': Cauc *ʔā-G^Wāi^WV 'side' (NSC 41).
110. Bsq e-gun 'day': Cauc *G^Wem-tV id.: Bur gun-c id. (NSC 69, MC 40).
111. Bsq (Souletin) gune 'place': Cauc *G^Wi^WInhV 'village, hut'.
112. Bsq hauts 'dust': Cauc *XurtV 'foam': Bur xurc 'dust' (NSC 77, MC 29).
113. Bsq hortz 'cloud': Bur xurōnč id. (MC 32).
114. Cauc *ʔIōX^WV 'good': Bur (W) xa id. (MC 42).
115. Bsq hama-r 'ten': Cauc Xām^WhV 'handful' (Etm 6).
116. Bsq ilhe, ulhe 'wool': Cauc *ʔōiXIV id. (MC 71).

117. Bsq **hun**, **hon** 'good': Cauc ***h^winžV** id. (NSC 116, MC 41).
118. Bsq **huñ** 'marrow': Cauc ***h^wen7V** 'blood': Bur **hAn** id. (MC 23).
119. Bsq **a-huñe** 'kid': Cauc ***hI^wōnxV** 'ram'.
120. Bsq **hur** 'nut': Cauc ***h^wōr-ñV** id. (NSC 105, MC 59).
121. Cauc ***hēm^gv** 'window': Bur **hiñ** 'door' (Etm 50).
122. Bsq **hortz** 'tooth': Cauc ***cil^hv** (< ***hⁱilcv** ?) id: Bur **-hAše** 'molar' (MC 11).
123. Bsq **oso** 'whole': Cauc ***ʔocV** 'be full' (NSC 110).
124. Bsq **oz** 'sky': Cauc ***ʔamsV** id.: Bur **aiyAš** id. (Etm 19).
125. Bsq **hoin** 'foot': Cauc ***ʔwin-q^wv** 'heel': Bur **-yān** id. (MC 21).
126. Bsq **hosin**: Cauc ***ʔwīnicV** (= #35 above).
127. Bsq **o-hoin** 'thief': Bur **yēn** id.
128. Bsq **hatz**: Cauc ***k^wač'e**: Bur **qAš** (= #52 above).
129. Bsq **sagu**: Cauc ***c^warg^wv**: Bur **čhArge** (= #34 above).
130. Bsq **-khab-**: Cauc ***q^waIpV**: Bur **qAf** (= #101 above).
131. Bsq **-hin**: Cauc ***xänʔi** (= #96 above).
132. Bsq **gibel**: Cauc ***ñ^wäHälV** (= #71 above).
133. Cauc ***s^wāno** 'year': Bur **šini** 'summer' (NSC 128).
134. Cauc ***c^wärnV**: Bur **chIər** (= #36 above).
135. Bsq **nigar**: Cauc ***newq'u**: Bur **nAgei** (= #29 above).
136. Cauc ***-werñ^hV**: Bur **wArk** (= #14 above).
137. Cauc ***mēlžV** 'earth': Bur **mAl** 'field' (NSC 75).
138. Bsq **bi-zi**: Cauc ***siʔ^wv** (= #61 above).
139. Bsq **ize-ba** 'aunt': Cauc (NE) ***-ilč^wi** 'woman (relative)' (Etm 44).
140. Bsq **sirats** 'sinew': Bur **chirIš** 'root' (NSC 107).
141. Bsq **soin**: Cauc ***čⁱnHV**: Bur **šAn** (= #40 above).
142. Bsq **hortz**: Cauc ***cil^hv**: Bur **-hAše** (= #122 above).
143. Bsq **hosin**: Cauc ***ʔwīnicV** (= #35 above).
144. Bsq **bortz**: Cauc ***b^grcV**: Bur **bAc-** (= #7 above).
145. Bsq **mokho**: Bur **mōq-** (= #102 above).
146. Bsq **oso**: Cauc ***ʔocV** (= #123 above).
147. Cauc ***š^glqⁱV**: Bur **šoq** (= #63 above).
148. Bsq **thu-** 'to spit': Cauc ***tujV** id.: Bur **thū-** id. (NSC 82).
149. Bsq **buru** 'head': Bur **būr** 'hair' (NSC 13).
150. Cauc **būrV**: Bur **bur-um** (= #8 above).

On the basis of the above matchings, we may provisionally tabulate the recurring correspondences as follows. Proto-phonemes are also suggested:

Proto-Macro-Caucasian:	Basque:	Caucasian:	Burushaski:	(etym. nos.)
p [ph]	p(h)	p [ph]	ph > pf	(1-3)
b	b	b / p̄	b	(4-10)
m	m	m	m	(11-13)
w	b	w	w	(14-18)
t̥	t(h)	t'	t	(19-24)
d	d	d	d	(25-28)
n	n	n	n	(29-30)
r	r(r)	r	r	(31-33)
c	s [ʃ] /-tz	c	ch/čh ³	(34-39)
č	s	č	š	(40-42)
ç	z [s] ⁴	c'	š	(43-48)
ç̣	z ⁴	č'	š	(49-53)
ć	(t)s	ć	?	(54-56)
ć̣	tx [č]	ć'	č	(57-58)
s	z	s	s	(59-62)
š	s	š	š	(63-66)
ḥ	lh	ḥ	ɣ	(67-70)
ḥ̣	g	ḥ'	t /-lt-	(71-77)
l	l /-r	l	l	(78-80)
k ^(w)	h/k ⁵	k ^(w)	kh/q	(81-86)
g ^(w)	g/b ⁶	g ^(w)	g	(87-91)
ḳ ^(w)	k(h)	k ^(w)	k/q ⁷	(92-95)
x	h	x	?	(96-98)
q	kh	q	q	(99-102)

q̇	kh	q'	q/kh ⁸	(103-7)
G(w)	g	G(w)	g/ɣ	(108-11)
X	h	X	x	(112-16)
h	h	h	h	(117-19)
h̥	h	h̥	h	(120-22)
ʔ	0	ʔ	0	(123-24)
ʔ ^w	h	ʔ ^w	ɣ	(125-27)
a	a	a	A [Λ]	(128-30)
ä	i	ä	i	(131-34)
e	i	e	A	(135-37)
i	i	i	i	(138-40)
e	o	i	A	(141-43)
o	o	ɔ	A / o ⁹	(144-47)
u	u	u	u	(148-50)

More complete versions of the above comparisons may be found in the etymologies referred to. Abbreviations used:

- MC = "An End to Splendid Isolation: The Macro-Caucasian Phylum." (Bengtson 1990)
 NSC = "Notes on Sino-Caucasian." (Bengtson 1991a)
 Etm = "Some Macro-Caucasian Etymologies." (Bengtson 1991b)

Notes:

1. Most explicitly, in Bengtson 1990. While others have proposed linguistic relationships involving some combination of Basque, Caucasian and Burushaski (often including other languages), no one, to my knowledge, has proposed a phylum including just the three families discussed here. (We have only fragmentary evidence for extinct languages that apparently also belonged to Macro-Caucasian: e.g., Aquitanian, Pelasgian.)
2. Of course, it would be desirable to base correspondences only on three or more matchings, but at this stage of the work we may sometimes have only one or two. Some of the correspondences are supported by more than three matchings.

3. Burushaski **ch** normally, **čh** before **A**. (Cf. French **ç** from Latin **c/e,i**, but **ch** from **c/a**.)
4. Basque **z** initially, **tz** finally or after a prefix.
5. Basque **h** initially in the syllable, **k** when contiguous with **z** [s].
6. Basque dialects often show labial reflexes of Macro-Caucasian labiovelars: e.g. **sabu** 'rat, mouse' beside **sagu**.
7. Burushaski **q** is the labiovelar reflex; cf. Bur **q** from ***k^w** above.
8. Burushaski **q** normally, **kh** before **i**.
9. **A** normally, **o** in uvular environments.

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POSTSCRIPT I

Readers of *Mother Tongue* may recall my article of the past year (Bengtson 1990), in which I proposed that we regard Basque, (North) Caucasian, and Burushaski as the three extant branches (families) of a linguistic phylum provisionally named Macro-Caucasian. I suggested that the relationship of these languages is not remote, but roughly comparable to the time-depth of Indo-European.

Václav Blažek has recently written a paper (Blažek, forthcoming) relevant to this issue. The main material of the paper consists of 30 lexical parallels among Basque, Caucasian, and Afroasiatic, and it is claimed that there is as much evidence for the Afroasiatic affinity of Basque as for the Caucasian. He concludes that the question of the genetic classification of Basque remains open, and that any definite resolution is "very far" away.

I could grant that Blažek's conclusion were possible if we had to rely only on those 30 lexical parallels. However, my classification of Basque as Macro-Caucasian is based on (a) lexical isoglosses in the most basic semantic fields, (b) traces of underlying grammatical paradigms, and (c) phonological correspondences and tendencies.

Category (a) has been documented in my earlier articles (Bengtson 1990a, 1990b, 1991a, 1991b), where about 250 etymologies are given as evidence for Macro-Caucasian (and the deeper taxon Dene-Caucasian = Sino-Caucasian). Other etymologies may be found in the works of, e.g., Bouda, Trombetti, Čirikba, Ruhlen.

Category (b) was briefly discussed in my earlier article (Bengtson 1990a), where I presented evidence for seven case endings in Macro-Caucasian. This degree of close grammatical correspondence is another indicator that the relationship is not remote.

Here I would like to discuss another set of evidence that points to a class (gender) system in Proto-Macro-Caucasian. First, the evidence from each family:

Basque now lacks any grammatical gender or class system, but lexical evidence indicates that the language once had a system of noun classes distinguished by prefixes:

A- prefix: Persons and animals:

- a-hiz-pa 'sister' (cf. Cauc *ʔiɕwV 'brother, sister', Bur -Aɕo 'brother, sister');
- a-gure 'old man' (cf. Bur gūro 'grayish');
- a-tso 'old woman' (DC: cf ND *ɕu 'mother-in-law, grandmother');
- a-huna 'kid' (cf. Cauc *Hw̃nxV 'sheep,

lamb');

a-kaiñ 'tick' (cf. Cauc *q^hinʔV 'louse, nit',
Bur khīn 'flea');
a-xuri 'lamb' (cf. Cauc: Hatti wa-zar-
'ewe').

Body parts:

a-dar 'horn, branch' (cf. Cauc *hVrV 'horn',
Bur -ltūr id.);
a-ho 'mouth' (DC: ST *Khō(w)H, Yen *Xowe id.);
a-tal 'limb' (cf. Bur -ltAlt-Ar 'limb');
a-hur 'hollow of the hand' (cf. Cauc: Batsbi
kor 'hand', etc.);

Intangible nouns:

a-din 'age' (cf. Bur den 'year');
a-mets 'dream' (cf. Cauc *HničWV 'night,
dream').

E-/I- prefix: Natural phenomena:

e-lhur 'snow' (cf. Cauc *h^hiuv id.);
e-uri 'rain' (cf. Cauc *y^her-tV id., Bur hAr-
Alt id.);
e-gun 'day' (cf. Cauc *G^hem-tV and/or
*ʔW^hiGinV id., Bur gun-c id., gōn
'dawn');
e-sne 'milk' (cf. Cauc *š^hinWV id.);
i-thoi 'a drop' (cf. Bur thī-š id.);
i-tsaso 'sea' (cf. Cauc (W) *čə / *ʒə 'salt',
Bur ʒau 'oversalted');
i-bar 'valley' (cf. Bur bAr 'nullah, ravine,
valley');
i-guzki 'sun';
i-zar 'star' (cf. Cauc *ʒ^harʒi id.);

BE-/BI- prefix: Body parts, fluids, and attributes:

be-larri 'ear' (cf. Cauc *lerhIV id.);
be-hatz 'thumb, toe': cf. hatz 'finger, claw,
paw' (cf. Cauc *k^hwač'e 'paw', Bur
qAš 'cubit');
be-koki 'forehead, crown' (cf. Bur (W) -kAk
'crown');
be-ha-zun 'bile' (cf. Cauc *c^hwāmʔi id.);
bi-hotz 'heart' (cf. Bur -As id.);
bi-rika 'lung' (cf. Cauc *jerk^hi 'heart',
comparison suggested by V. Blažek);
bi-zka-r 'back' (cf. Cauc (Abkhaz) a-zkva
id., Bur -sqā 'on one's back');
bi-zi 'life, alive' (cf. Cauc *siʔWV 'soul,
breath').

O-/U- prefix: Body parts and fluids:

o-dol 'blood' (cf. Bur del 'contents of an
egg'; DC: Na-Dene *deɪ 'blood');
u-zki 'anus' (cf. bi-zka-r 'back', above);
u-kondo 'elbow' (cf. Cauc: Lezgi q^hunt id.);
u-khabil 'fist' (cf. Cauc *q^hwāIpV 'paw');

u-khai 'forearm' (DC: Sino-Tibetan *kaj
'arm', Na-Dene *-qai- id.).

Other prefixal remnants:

L- in dialectal la-kain 'tick' (cf. a-kain̄,
above), li-s-tu 'saliva', l-urriin
'odor';

N- in in-khatz 'coal', dialectal in-gel,
ne-gel, ne-gal 'frog', in-har
'spark', in-hurri 'ant'.

In sum, the Basque evidence points to the prior existence of a noun class system, whose phonetic remnants are still sporadically present, and whose semantic significance is at least partially evident. (Other scholars, e.g., Trombetti, Uhlenbeck, Bouda, and Čirikba, have noted aspects of this underlying prefixal system and related it to the Caucasian class system.)

In Caucasian, on the other hand, the noun class system is fully alive (except in some Lezghian languages and the extinct Hurro-Urartian), and is reconstructed as follows:

- | | | | |
|------|-----------------------------|---------------|---------|
| I. | "rational-masculine" | (prefix:) *y- | pl. *w- |
| II. | "rational-feminine" | *j- | *w- |
| III. | "irrational-non-collective" | *w- | *r- |
| IV. | "irrational-collective" | *r- | *r- |

In Proto-East-Caucasian a few nouns could have prefixed class markers, mainly parts of the body and kinship terms. In some languages the prefix marks the class of the noun stem, as was apparently the case in pre-Basque:

Avar w-as 'son': j-as 'daughter'.

While in others the prefix denotes the class of the possessor, as in Burushaski:

Dargwa w-a^h 'face (of a man)': r-a^h 'face
(of a woman): b-a^h 'face (of an animal).
(Diakonoff & Starostin 1986: 10, 71)

Burushaski has a class system very similar to the Caucasian system:

- | | | | |
|------|-------------------------|---------------|--------|
| I.a. | "human-masculine" | i- (3p poss.) | pl. u- |
| I.b. | "human-feminine" | mu- | u- |
| II. | "non-human-
animate" | i- | u- |

III. "non-human-
inanimate"

i-

i-

As in Caucasian, "prefix-bearing nouns" are mainly terms for body parts and kinship terms, and also a few words pertaining to social practices. The class markers cited above are third person possessive. When non-possession is expressed, one uses i- or mi-:

i-čhAr 'a voice' = 'his voice';
mi-me 'a tooth' = 'our tooth'. (Lorimer
1935: I: 14ff, 127ff, 134-39)

When we compare the three families, there can be little doubt that the fossilized class prefixes of Basque must be related to the living class systems of Caucasian and Burushaski. Significant differences have indeed developed during the (five to seven?) millennia the languages have been dispersed, just as grammatical systems have diverged in Indo-European and other language families. The Macro-Caucasian class system was probably very similar to the Caucasian one, with four or more categories based on distinctions such as human-non-human, animate-inanimate, collective-non-collective.

One hesitates to make sweeping comparisons of the markers attested in the three families, since there are important differences. Basque be-/bi- (with body parts) is most likely cognate with Caucasian III *v- (b- in some languages); Basque e-/i- may be compared with Caucasian II *j- and Burushaski i-; Basque o-/u- with Caucasian I *u- and Burushaski u- (plural); and Basque le-/li- with Caucasian IV *r-.

We then come to category (c), phonological correspondences and tendencies. Let me emphasize immediately that sound correspondences, in and of themselves, do not prove the genetic relationship of languages. In fact, diagnostic isoglosses in categories (a) and (b) have already "proved" the relationship before one begins tabulating sound correspondences. However, the latter are useful in providing a scientific control on the body of evidence being developed. To be able to show that the forms in proposed etymologies and paradigms are phonologically related removes the possibility of chance resemblance. (Cf. Greenberg 1987, chapter 1; Fleming 1987: 206.)

The phonological correspondences of Macro-Caucasian are briefly outlined in my earlier article (Bengtson 1990a), and more extensively in a manuscript in preparation (Bengtson 1990r). Despite a few vexing cases, the correspondences are recurrent and regular, just as in Indo-European and other language families.

Beyond this, I will mention some phonological tendencies, which, though they appear to be quite irregular and sporadic, are distinctively Macro-Caucasian. These are metathesis and "labialization of n":

Metathesis, while infrequent and sporadic in most language families, seems unusually prolific in Macro-Caucasian languages. This is explained, in the case of Proto-East-Caucasian, as due to the large number of distinct phonemes in these languages, so that "the order of phonemes was comparatively less relevant" than in languages having fewer distinct phonemes (Diakonoff & Starostin 1986: 9). Thus, Nikolaev and Starostin assume many metathesized variants in their reconstruction of Proto-Caucasian:

*cȳnV /*nȳcV 'aunt, cousin' (cf. Bur -ncō 'aunt');
 *ćamV /*maćV 'kinsman' (cf. Bsḡ seme 'son', etc.);
 *sēmhiV /*hiēmsV 'muscle, sinew, intestine'
 (cf. Bsḡ zaiñ 'vein, nerve, root');
 *qʷapV /*paqʷV 'root';
 *tʰihʷV /*hʷitʰV 'little'; etc. (NCR)

In the modern languages, forms such as Tindi tʰuka ~ kʰuta 'he goat' are in free variation. Likewise in Basque we find variation in the word for liver, generally gibel, but bigel in Haut Navarre. The cognate word in Caucasian is reconstructed to at least three variants:

*ħ,ʷāhālv (Hatti taḡala-in, Urartian zel-də);
 *hālāħ,ʷv (Lezgi leqʰ);
 *lāhāħ,ʷv (Chechen doḡah) 'liver'.

The Basque forms can be accounted for by metathesis or assimilation of the labial element:

*ħ,(ʷ)āhʷālv > gibel;
 *hʷāħ,(ʷ)ālv > bigel.

(b is the regular Basque correspondence to Cauc *w or *hʷ, as is Basque g to Caucasian *ħ,(ʷ).) The remote evidence of Na-Dene (Haida) ħʰakʰul 'liver' would point to Basque gibel, Hatti taḡala- as retaining the older order. In several other cases, the order in Caucasian differs from that in Basque:

Bsḡ hosin 'well, pool': Cauc *qʷiñ(ɿ)cV 'spring, well';
 Bsḡ negu 'winter': Cauc *hā,ʷini id.;
 Bsḡ hortz 'tooth': Cauc *ciħiV id. (Bur -hāše 'molar');
 Bsḡ zahar 'old': Cauc *sʷirHo /*rihišʷo 'old, year';
 Bsḡ txahal 'calf, heifer': Cauc *ɬiɿ,ʷiV id.

It is seen that an awareness of the tendency to metathesis in Macro-Caucasian is essential to the recognition of these cognates. Likewise, the other tendency, labialization of n, allows us to recover the following cognate sets:

Bsḡ eme 'sweet': Cauc *hVnēʰʷV id.;

Bsq **gune** 'place': Cauc *G^wĩnhV /*G^wĩmhV
 'village, house';
 Bsq **a-mets** 'dream': Cauc *Hníc^wV /*Hc^wĩnV 'night,
 dream';
 Bsq **niga-r** 'tear': Cauc *newq^u (Lak maq^u) 'tear,
 pus': Bur nAgei~ mAgei 'boil' (pus);
 Bsq **ema-khume** 'woman': Cauc *q^wānV id. (Archi Xom,
 Lak qami 'women'): Bur guma 'concubine';
 Bsq **e-gun** 'day': Cauc *G^wem-tV 'day' (24 hours):
 Bur gōn 'dawn', gun-c 'day'
 Cauc *Hinīs^wu 'cheese': Bur hAmenž id.;
 Cauc *nāwšE 'sheep about 2 years old': Bur mamušī
 'lamb'.

In every case of labialization of **n** we note that there existed a labial element (**u**, **w**) in the root, which, when transferred to the neighboring **n**, transforms it to **m**. Compare the Caucasian variants:

*d^wānhV /*dāmHV 'drum'.

Ultimately, the labialization of **n** turns out to be another manifestation of metathesis, the metathesis of a feature (labialization) from one consonant to another in the same root. (As we saw above in the words for 'liver', the same phenomenon can account for Basque **b**.) So both of these phonological tendencies can be viewed as one and the same: the tendency to metathesis in a proto-language abundantly endowed with distinct consonant phonemes. As far as I know, this strong tendency to metathesis is confined to Macro-Caucasian languages, and is relatively unknown in Afroasiatic and other Eurasian language groups.

So while there are undoubtedly lexical parallels between Basque and Afroasiatic, few of them involve the most basic, non-cultural vocabulary, and these can be explained as residue of a long-range relationship between Dene-Caucasian and Afroasiatic. When Basque, Caucasian, and Burushaski are compared, basic isoglosses become much more numerous. Furthermore, the Basque noun case endings and fossilized class prefixes have counterparts only in Caucasian and Burushaski, and the phonological systems of these three language families are interrelated to a degree that clearly distinguishes them from Afroasiatic.

Blažek's opening statement that the Basque question remains unresolved "because only synchronic data from Basque can be used for comparisons" seems to reflect the misconception that "reconstruction is necessary for classification" (Greenberg 1987: 36). To return again to the Indo-European experience, we have seen that Albanian, after the peeling away of layers of loanwords, was diagnosed as a distinct branch of Indo-European. In the same way we can base the classification of Basque as Macro-Caucasian on the presence of diagnostic lexicon and grammar, and these

isoglosses are corroborated by regular phonological correspondences and tendencies.

GLOSS:	MACRO-CAUCASIAN:			SINO-	YENI-	NA-
	Basque:	Caucasian:	Burush:	TIBETAN:	SEIAN:	DENE:
EYE ₁	*bergi ¹	*?wilhi ²	īl- ³		*de-	
EYE ₂				*mjāk		*-myaG ⁴ wāq ⁵ *dei ⁷
BLOOD	o-dol		del ⁶			
LIVER	gibel	*ñ'wäHälV				ñ'ak'ul ⁸
BACK	bi-zka-r	a-zkwa ⁹	-sqa ¹⁰		uška ¹¹	sku ¹²
STAR ₁	i-zar	*3wHārʕi	1A-čhār ¹³	*čar ¹⁴		
STAR ₂			a-sum-un ¹⁵	*sēŋ ¹⁶ li-con ¹⁸		*sem?~ ¹⁷ *cem? *ğwen- ²⁰
DAY	e-gun	*Gwem-tV	gōn ¹⁹			
WATER	u-hin ²¹	*xänʔi			*xur	hin ²²
FULL ₁	bil ²³		bil	*bliŋ		-bin, ²⁴ -bīl
FULL ₂			hik			hik ²⁵
OLD	sen- ²⁶	*śwāno ²⁷	šini ²⁸	*snī-ŋ ²⁹	*sin-	*śan-
NAME ₁	i-zen		sen- ³⁰			-sen ³¹
NAME ₂			-īk~ ³² -yek		*?iG	-yi?~ ³³ -ye?
WHAT?	ze-r	*sa	be-sA-n	*su ³⁴	*sV	sA ³⁵

NOTES: 1. Generally begi, the earlier form *bergi is inferred from forms such as Souletin ber-phuru 'eyebrow'. Cf. Caucasian forms such as Chechen bGärg 'eye' for convergent development. 2. Except as indicated otherwise, the Caucasian forms are those reconstructed by S.L. Nikolaev and S.A. Starostin. 3. -l-čī(n) is the normal form, īl- in compound words. 4. Eyak-Athapaskan. 5. Tlingit. 6. 'oil; contents of an egg.' 7. Eyak-Athapaskan. 8. Haida. 9. Abkhaz. 10. 'on one's back.' 11. Ket. 12. Haida. 13. 'morning star (Venus).' 14. 'sun, moon.' 15. Werchikwar dialect. 16. Old Chinese. 17. Eyak-Athapaskan. 18. Hruso. 19. 'dawn.' 20. Eyak-Athapaskan. 21. 'wave (in the water).' 22. Tlingit 'fresh water, river.' 23. 'to gather, to amass.' 24. Navajo. 25. Tlingit. 26. in senton 'old man', sen-tana 'old woman'? 27. 'year.' 28. 'summer.' 29. 'year, old.' 30. 'to say, to name.' 31. Tlingit 'to name, to breathe.' 32. Hunza and Werchikwar forms, resp. 33. Chipewyan 'to name.' 34. 'who.' 35. Tlingit interrogative particle

POSTSCRIPT II

Some Sumerian - Dene-Caucasian Comparisons

1. (Sum) *zi*, *ši* 'life, soul' (D): cf. Bsq *-xe* 'self'; Cauc **šwV* 'self'; Bur *ži* 'life, soul, self'; Yen **ʔeʔte* 'alive'.
2. *šika* 'clay' (D): cf. Cauc **čyq, wV* 'dirt'.
3. *šu* 'hand' (B, J): cf. ST **čow(H)* 'to bring', etc. (SC 10.17, CB 75).
4. *šà.g* (ES *šà.ab*) 'heart' (T), also 'breast, belly, guts' (B): cf. Bsq *sab-el* 'stomach'; Cauc **šabV / *šawV* 'liver, kidney'; Bur *-A-so* 'kidney'; ST **c(h)uap* 'lung'; Yen **tVp-V1* 'spleen' (SC 1.23, Etm 8, CB 79).
5. *sigga* 'billygoat / Ziegenbock' (D): cf. Bsq *zikhiro* '(castrated) goat'; Cauc **c, škV* 'goat, kid'; Bur *chigir* 'nanny goat'.
6. *šu-kin* 'stick' (B): to the element *-kin*, cf. Bsq *zu-hain, -han* 'tree'; Cauc **kʷanʔV* 'splinter, soft wood' and/or **kʷvn-šV* 'crown of a tree'; Bur (W) *kuna* 'rod, pole, stick'; ST **kūg* 'tree, branch, stem'; ND **kinH-* 'sticks'.
7. *an* 'sky' (B, J): cf. Cauc **ʔamšV* 'sky, sky-god', etc. (Etm 19). (? **ʔams->*ʔamh->*(?)am>an* ?) (CB 'high/to lift').
8. *gár* 'lait crémeux' (J): cf. Bsq *gorhi, guri* 'butter'. (CB 'milk/butter/cream'; cf. also CB 50.)
9. *luh* 'to wash' (B, T): cf. ST **lu(w)* id. ND: Hupa *-lu, -le* 'to dive, swim'. (CB 203)
10. *mez* 'man' (B), 'Mann, Herr' (D), 'héros' (J): cf. Cauc **mīrāV* 'male, man', etc. (Etm 38).
11. *bar* 'to split, to open' (B, T): cf. Bsq *ber-hezi* 'to separate, distinguish'; Bur *bAr-* 'to thresh' (separate grain from straw); ST **phraj* 'to split, divide'. (S 143, CB 169)
12. *tál* 'wide' (B, T): cf. Bur *dAl-dAl-um* id.; ST **dhe1* 'to spread, stretch'; ND **tei-* 'wide'. (S 176)
13. *dar* 'to split' / or *tar* 'to cut' (B, T): cf. Cauc **ʔV-t, wVr-* 'to tear'; Bur (W) *tūr-* 'to rip, tear'. (S 177, CB 31, 169)

14. *tīl* 'arrow' (J): cf. Bur *thīl*, *tīli* 'leather of pellet bow'; ST **tal* 'arrow'.
15. *ziz* 'moth' (D, J): cf. Bsq *sits* id.; Cauc **šw*₃V 'bug, tick'; Bur (W) *šišAr* 'a kind of beetle'.
16. *hul* 'to destroy' (D, T): cf. Bsq *hil* 'dead; to die'; Bur *hōl* 'army'; ND **Xal-* 'to fight; war'.
17. *pa* 'staff, sceptre' (D): cf. Bsq *phau* 'stake, pole' (if not from Romance *palu-*); Bur *-pauwo* 'stick, staff'; ST **pa* 'cane, bamboo'.
18. *zar* 'to flow' (B): cf. Cauc **ʔi-3WVrV* 'to strain, pour'; Bur *chAr-* 'to drop, to fall (tears, rain), to be sprinkled'; ST **chōr* 'to strain, pour'. (CB 60, S 11)
19. *šug* 'food, subsistence' (D): cf. Bur *šī(y)-*, *šū(y)-* 'to eat'; Yen *siG-* id., etc. (S 209)
20. *u-bur* 'breast' (B, D): cf. Bsq *bulha-r*, *bula-r*, *bura-r*, *buda-r* 'breast, bosom'. (CB 18)
21. *te* 'deutlich machen': cf. ST **ti* 'speak'; ND: Ath **ti?* 'to talk'. (CB 142)
22. *gu₇*, *kú* 'to eat' (B): cf. Bsq *a-ho* 'mouth'; ST **Khō(w)H* id.; Yen **Xowe* id. (SC 36)
23. *šīr*, *sīr*, *sur* 'to sing' (B): cf. ND **šin-* id. (CB 'to sing')
24. *kād* 'to tie' (B): cf. Cauc **k^wetV* 'reel, skein, hank'; ST **k^wāt* 'to tie, bind'; ND **qad?* 'to sew'. (S 65, CB 193)
25. *zu*, *ni-zu* 'to know' (B, J, T): cf. Bsq *en-tzu-n* 'to hear'; Cauc **ʔamc^vV* 'to know, see'; ST **sia* 'to know'; Yen **ʔVt-* id.; ND: Ath **c^va(n)-* 'to hear'. (SC 30, Etm 64)
26. *ér*, *ir₆* 'to weep': cf. Bsq *eri* 'sick; sickness'; Bur *her-* 'to weep'. (CB 30)
27. *limmu*, *lim* 'four' (B, T): cf. Bsq *lau-*, *lau-r* id.
28. *haw(a)mu*, *haw(u)mu* 'ten' (T): cf. Bsq *hama-*, *hama-r* id.; Cauc **XamhV* 'hand, handful'. (Etm 6)
29. *éš* 'house' (D): cf. Bsq *etze*, *etxe* id.; Cauc **c^vVrHV* id. (Etm 49)
30. *zag-gar(-ra)* 'guts' (B): to the element *zag-*, cf. Cauc **č^vaq^vV* id.; ND **č^veq-* id.
31. *zag-gar(-ra)* 'guts' (B): to the element *-gar(-ra)*, cf. Cauc **Gš^rž^vV* 'spleen'.

32. a.gàr, (ES) a.ða.ar 'field' (T, J): cf. Bsq alhor id. (CB 'field')
33. ud, utu 'sun, day' (B, J): cf. Bsq uda 'summer'. (CB 33)
34. bar 'liver': cf. Bsq bare 'spleen'. (Noted by Blažek.)
35. šur 'to flow' (B), cf. sur 'to perform a function from which a liquid product results' (T): cf. Bsq isuri, ixuri 'to flow'; Cauc *šorV 'lake, river'; ST *šur 'to flow, pour'. (CB 60)
36. lu, mu-lu 'man' (J, B): cf. Cauc *šiwlv / *šiwšV 'man, male' (Batsbi -law, Chechen -lo 'suffix denoting profession, -man'); ND: Tlingit lln-gIt 'Tlingit, person, people'; Eyak šllaa 'man', Yakutat lllia id; Haida iiiiŋa 'male, man'.
37. gur, gurun 'blood' (B): cf. Bsq gor 'meat', gorri 'red', gor-din 'raw, crude', gorrin-ko 'yolk of an egg'; ST: ? Burmese-Lolo *krwiy 'sweat'. (CB 15)
38. ak 'to make, do' (T): cf. Bsq egi(n) id. (CB 'to do, to make')
39. kin 'to seek' (T): cf. DC *qen- / *Gen-: Bur yAn- 'to seem', (W) yan- 'to see, look', yen 'seen, visible', a-qen 'unseen, invisible'; ST *qēn 'to see, know'; ND: Haida qin 'to look', Tlingit Gen id. (S 49)
40. dal 'to fly' (B, T): cf. Bur dAl 'up, above'; ND *dal- 'to go'; Tlingit duŋ 'to fly'.
41. me 'to be' (T, J): cf. Bsq min- 'to place, to arrange'; Cauc *ʔi-ma(n)- 'to be, stay'; Bur -mAn- 'to be, become'; ST (Midžu, Meyöl) mān 'to rest'. (Etm 62)
42. naḡ, naḡ 'to drink' (B, J): cf. ND *naNH- id. (Tlingit na, nA; Mattole -naah, -naan, -naaʔn, -naal, -naḡʔ id.).
43. pad.r 'to break' (T): cf. Bur d-A-pfAlt-As, (W) -pfAlt-, -pfAlt- 'to burst'; ND: Tlingit waɪ 'to break'; Mattole -boʔi, -boʔd 'to burst, break into pieces'. (CB 'to break')
 ¶ Sum pad.r was probably [pʰat] in the light of universal typology (Boisson, "Contraintes typologiques sur le système phonologique du Sumérien.")
44. sa 'blood' (B): cf. ND: Tlingit še id.
45. sal 'to be thin, spread' (T): cf. DC *ʒVlHV 'to spread out'. (S 19)
46. nunuz, nuz 'egg' (CB 45): cf. Bsq intzaur, untzaur 'nut'; Bur xunzur 'walnut'; ND: Ath *-xe(n)šwʔ- 'egg' (NSC 106).

47. lu 'to lie' (CB 101): cf. Bsq lo 'sleep', lo egin 'to sleep'.
48. ná 'to lie' (CB 101): cf. ND *naH 'to live, to dwell'.
49. sig 'small, thin' etc. (CB 159, 187): cf. Bsq (dialectal) txiki 'small'; Cauc *ǵik'V 'short'; Bur (W) čiki 'small'.
50. tur₅ 'to enter, bring in' (CB 'to enter'): cf. Bsq ethorri 'to come, attend, proceed'.
51. múh 'top, skull' (CB 'top/skull/brain'): cf. ECauc *maḡu 'brain'; ST *nūH id.; Yen *doʔ-ŋ id. (SC 1.7); ? Bsq mun, mu(i)n id. from *mVHV + hu(i)n, hun 'marrow'?

Abbreviations:

B	Boisson 1989. "A Provisional Basic Word List for Sumerian"
CB	Boisson 1989. "Sumerian - Nostratic - Sino-Caucasian Isoglosses."
D	Delitzsch 1914. Sumerisches Glossar.
Etm	Bengtson 1991. "Some Macro-Caucasian Etymologies."
J	Jestin 1965. Notes de Graphie et de Phonétique Sumériennes.
NSC	Bengtson 1990-91. "Notes on Sino-Caucasian."
S	Starostin 1989. "Nostratic and Sino-Caucasian."
SC	Starostin 1984. "Gipoteza o genetičeskix svjazjax."
T	Thomsen 1984. The Sumerian Language.

**MACRO-CAUCASIAN:
A HISTORICAL LINGUISTIC HYPOTHESIS**

Abstracts by John Bengtson

The Macro-Caucasian Languages:

Basque [7 dialects, ca. 1,000,000 speakers]:

Bizkaia, Gipuzkoa, Nafarroa, Behenafarroa,
Lapurdi, Zuberoa, Araba.

"Paleo-European" [possibly several distinct languages, all
long extinct]:

Aquitanian, Jacitanian, "Iberian", "Pelasgian",
possibly Etruscan, etc.

Caucasian (= North Caucasian) [34. extant languages,
ca. 2,000,000 speakers]:

Abkhaz, Abaza, Ubykh, Kabard, Adyghe, Chechen,
Ingush, Batsbi, Avar, Andi, Botlikh, Godoberi,
Karata, Akhwakh, Bagwali, Tindi, Chamalal, Tsez,
Khwarshi, Hinukh, Hunzib, Bezhta, Lak, Dargi,
Archi, Tabasaran, Agul, Rutul, Tsakhur, Lezgi,
Khinalug, Budukh, Kryts, Udi, (extinct: Hatti,
Hurrian, Urartian, Qutian, Aghwan).

Burushaski (Khajuna) [three dialects, ca. 20,000 speakers]
Hunza, Werchikwar, Nagir.

Some Basic Lexical Comparisons

	Basque:	Caucasian:	Burushaski:
1st PERSON:	ni	*n ⁱ *mV *zo	ni 3a
2nd PERSON:	hi	*Gu *yo	gu-, ku- ū-
TWO:	bi	*q ^w iI	
WHAT?:	ze-r	*ša	be-sA-n
WHO?:	no-r	na ¹	a-na ²
TONGUE:	mihi	*mēlc'i	-melč ³
NAME:	i-zen		sen-As ⁴
EYE:	begi	*?vilhi [bǧärg, ul] ⁵	-l-č ⁱ , -īl-
HEART:	bi-hotz		-As
TOOTH:	hortz	*ci ⁱ hV (?from *hiicv)	-hAše (-me) ⁶
NEGATIVE:	ze, ez	*č ^e a / *č ^e a *ma *?(v)V	be a-, A- hAlA-ns hesa ⁷
MOON:	hila	*w ^{amc} 'o	
NIGHT:	arrats ⁸ zaro ⁹	*H ^w irink ⁱ *š ^w VrV *pVsV	gōn-šere ¹⁰ hAsa ¹¹ hesk ¹²
HAND:	esku	*rem ^k ,v ¹³	-rīj
BLOOD:	hum ¹⁴	*h ^w en?V	hAn-15
HORN:	a-dar	*k ^v VrV	-itūr
SALT:	i-tsaso ¹⁶	*č ^e ¹⁷	čau ¹⁸

[The above comparisons all fall within the 25 most stable meanings, *sensu* Dolgopolsky 1964. So many correspondences in these basic realms indicate genetic relationship of the languages in question. The following comparisons tell us something of the early Macro-Caucasian environment, culture, and society.]

KIDNEY:	sab-el ¹⁹	*ʒabv	-so
HEEL:	hoin ²⁰	*ʔʷin-qʷv	-yān
STAR:	i-zar	*-3ʷarʑi	1A-čhār ²¹
SNOW:	e-lhu-r	*xʷiuV loa ²³	hio ²²
FOREST:	oi-han	*fanv ²⁴	hūn ²⁵
RODENT:	sagu ²⁶	*cʷargʷv	čhArge ²⁷
SNAIL:	barakuilu	baIrčalu ²⁸	yArkAs ²⁹
FLEA:	ziga-r ³⁰	*cʷikʷā	čeke ³¹
TICK:	a-kain	*qʷinʔv ³²	khin ³³
GOAT:	zikhiro ³⁴	čʷekʷir ³⁵	chīgir
PEAR:	sagar ³⁶	čuxʷer ³⁷	šuyuri
SISTER:	a-hiz-pa	*ʔičʷv ³⁸	-Ačʷo ³⁸
KINSMAN:	seme ³⁹	*čamv šeni ⁴⁰	žām
VESSEL:	pata-sa ⁴¹	*patʷv	pʃʌta ⁴²
GOOD:	hun, hon	*hʷinžv *HVčʷv	šūa
OLD:	zahar	*sʷirHo	chör- ⁴³
SMALL:	txiki [čiki]	*ʒikʷv ⁴⁴	čiki

Grammatical correspondences:

DATIVE:	-i	*-i / -j	-e ⁴⁵
LOCATIVE:	-ra ⁴⁶	*-rv	-ar ⁴⁷
	-ta	*-tʷ ⁴⁸	-ʌte / -eʃe ⁴⁹
INESSIVE:	-n	*-nv ⁴⁵	-ʌne / -ʌpe / -eʃe ⁵⁰
INSTRUMENTAL:	-z	*-š(ē)	
	-k, -ik ⁵¹	*-kʷ ⁵²	-ʌk / -ek

NOTES TO ETYMOLOGIES:

1. Agul. 2. (Werchikwar) 'where'. 3. 'jaw'. 4. 'named'.
5. Chechen and Tabasaran forms, resp. 6. 'molar tooth'. 7. 'month'.
8. 'evening'. 9. dialect for usual *gau*, *gai*. 10. 'all night'.
11. 'night or day' as a measure of time. 12. 'wrist, back of the hand'.
13. 'cubit'. 14. 'marrow, brain'. 15. in the compound *han-chil*
'blood and water'. 16. 'sea'. 17. Northwest Cauc. 18. 'oversalted'.
19. 'stomach'. 20. 'foot'. 21. 'morning star, Venus'. 22. 'hail'.
23. Ingush. 24. 'mountain, shady wooded slope'. 25. 'wood, timber',
(Werchikwar) 'up stream, up valley'. 26. 'rat, mouse'. 27. 'flying
squirrel'. 28. Lak (dialect). 29. 'lizard'. 30. 'mite'. 31. 'nit'.
32. 'louse, nit'. 33. 'flea'. 34. 'castrated goat'. 35. Andi. 36.
'apple'. 37. Lezgi. 38. 'brother,sister'. 39. 'son'. 40. Hurrian
'brother'. 41. 'bottle'. 42. 'wooden dish'. 43. 'ancient, former(ly)'.
44. 'short'. 45. genitive. 46. aditive. 47. allative. 48. lative.
49. adessive. 50. comitative. 51. ergative, ablative-partitive, resp.
52. also ablative, partitive, in some languages.

Macro-Caucasian and

Dene-Caucasian:

While Macro-Caucasian constitutes a phylum-level genetic group with about 5,000 to 7,000 years of time-depth (comparable to Indo-European), it has been shown to belong, in turn, to a much more ancient and widespread macrophylum, **Dene-Caucasian** (= Sino-Caucasian), made up of the following phyla:

Macro-Caucasian;

Sumerian (per Bengtson 1990b);

Nahali (per M. Ruhlen, H.C. Fleming);

Sino-Tibetan;

Yeniseian;

Na-Dene.

The following examples of Dene-Caucasian shared vocabulary are selected for attestations in geographical extremes (Basque and Na-Dene):

Basque **hatz** 'claw, finger': Cauc ***kʷač'e** 'paw': Na-Dene: Athapaskan ***-keč'** 'claw' (Hupa **-keč'**);

Basque **a-tal** 'limb', **a-ztal** 'calf, heel': Bur **-ItAlt-er** 'foreleg (of quadruped); shoulder (of horse); arm (of human): Na-Dene: Athapaskan ***-talʔ** 'heel' (Navaho **-tal**);

Basque **o-dol** 'blood': ? Bur **del** 'egg-yolk, oil': ? Sumerian **dal** 'breath, life, soul': Na-Dene: Eyak **dei**, Ath. **dei** 'blood' (Navaho **dii**);

Basque **gibel** 'liver': Cauc ***kʷähälV** id. (Hatti **taḫala-**): Na-Dene: Haida **ñ'ak'uł**, Tlingit **ñ'uGu**, Tsetsaut **a-l'ɔq'** id.;

Basque **e-gun** 'day': Cauc ***Gʷem-tV** id.: Bur **gōn** 'dawn': Na-Dene: Ath ***gʷen-** 'day' (Navaho **ǰi**), Eyak **ǰaʰ** id.;

Basque **u-hin** 'wave': Cauc ***xiimʔi** 'water' (Avar **xiin**): Yeniseian ***xur**₁ id.: Na-Dene: Tlingit **hin** 'fresh water', Ath ***xanʔe** 'river';

Basque **hartz** 'bear', **haz-ko** 'badger': Caucasian: Daghestan

*XI^WVrC^V 'squirrel, marten': Sumerian az 'bear': Yeniseian *Xas
'badger': Na-Dene: Haida XuuaʒI 'grizzly bear', Tlingit Xuuc' id., Ath
*Xaš^W 'black bear', *Xaʔ₃ 'grizzly bear';

Basque sagu 'rat, mouse' (cf. Macro-Caucasian RODENT,
above): ? Nahali carko 'black-faced monkey': Sino-Tibetan *srāiŋ
'squirrel': Yeniseian *saʔqa id.: Na-Dene: Haida ČolgI 'ground
squirrel', Tlingit cAlk' 'ground squirrel, gopher', Carrier colq-es
'chipmunk';

Basque suge 'snake': Cauc: Lezgian *č'ek'- 'lizard, fish':
Yeniseian *cīk 'snake, fish': Na-Dene: Haida siiga 'snake';

Basque ema-zte 'woman, wife': Cauc *cVdV 'female' (Hurrian
ašti 'woman, wife'): Na-Dene: Haida ʒaadaa, ʒat 'woman', Tlingit ǎAt
'wife';

Basque seme 'son' (cf. Macro-Caucasian KINSMAN, above):
Sino-Tibetan *can (Dhimal ćan 'son, offspring', Lepcha ā-zon
'grandchild', etc.): Na-Dene *sani (Tlingit sAnI 'father's brother').

Language Contact: Borrowing
and Substratum

In general, it can be said that Macro-Caucasian languages have been recessive in the advance of Indo-European languages. But even as many Macro-Caucasian languages and dialects must have become extinct, they left traces in the dominant languages. IE Languages as diverse as Spanish, Portuguese, Sardinian, Albanian, Armenian, Shina and Khowar (in Pakistan) show such traces:

Spanish *niño, niña* (Port. *ninho, ninhã*) 'child', *niña* (del ojo) 'pupil (of the eye)'; Shina *nAni* 'eyeball': cf. Basque *nini* 'child', (begi-) *nini* 'pupil (of the eye)'; Caucasian **nanV* 'pupil of the eye; doll'; Burushaski *nAna* 'eyeball; uncle';

Span., Port. *caracol*, Catalan *caragol*, French *escargot* 'snail'; Shina *KirkAli* 'lizard', etc.: cf. Macro-Caucasian SNAIL above. (The French word may be influenced by, or blended with, Latin *scarabaeus* 'beetle'.);

Spanish *cachorro* 'puppy'; Sardinian *žáyuru* 'hunting dog'; Greek dialect *zagáro-s, zagári* 'hunting dog': cf. Basque *zakhur* 'dog' (diminutive) *txakhur* [čakhur] 'small dog, puppy'; Caucasian: Budukh *căkul* 'fox', etc.; ? Burushaski *žAkum, žAkun* 'donkey' (Shina *žAkun* id.). Georgian *žayli*, Laz *žoyori* 'dog' are probably also related, from Macro-Caucasian substratum.;

Albanian *shegë* 'pomegranate'; Shina *šuguri*, Khowar *šAyōri* 'pear': cf. Macro-Caucasian PEAR above.

Albanian *hardhi, ardhi* 'vine'; Armenian *orth* id.: cf. Basque *ardo, ardao* 'wine';

Albanian *thënegulë* 'ant': cf. Basque *txingurri*, Caucasian **žimižV* id.;

Shina *čArgei* 'woolly flying squirrel': cf. Macro-Caucasian RODENT, above; Shina *lAčār* 'morning star': cf. Macro-Caucasian STAR.

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ON DENE-CAUCASIAN SUBSTRATUM IN EUROPE

John Bengtson

I am finding interesting things about Dene-Caucasian substratum in Europe. Besides the more obvious cases in Iberia, Balkans, Alps, and Sardinia, I think there may have been Dene-Caucasian substrata even farther north in Europe. I have been collecting Germanic words that have eluded IE explanations, but may have DC parallels, e.g.:

Gmc *lamba- (Eng lamb, Ger Lamm id., Gotland Swedish lamb 'sheep') : Cauc *lamba-kV 'sheep';

Gmc *gatwō-n- 'street' (Ger Gasse, Swed gata) : Cauc *GGwāt'V 'street';

Gmc *daHw- 'dew' (Eng dew, Ger Tau, Swed dugg, dagg) :
Cauc *dwiX/V 'snow, hoarfrost, dew';
Werchikwar dau 'rain';

Gmc *hēra- /xe: ra/ 'hair' (Eng hair, Ger Haar, Swed hår) :
Cauc *kiwrV /khiwr-/; ST *kra id.

SOME SINO-CAUCASIAN ETYMOLOGIES

John Bengtson

The following three etymologies can be added to my paper on Dene-(Sino)-Caucasian:

1. 'beard' ****muč'u** :

Basque: musu 'lip, face, mouth, snout; kiss' musin 'snout, muzzle'

Sumerian: muš 'face, appearance'

Burushaski: muš-k-anē 'on one's face, face down'; muš-ki 'pubic hair' ('the beard below')

North Caucasian: NC *mɔc'y 'braid, hair, beard' (NC 15); Archi muč'-or, Rutul mič'-ri, Tsaxur muč'-ru, Agul muš-ur, Tabasaran muš-ri, Dargwa muc'-ur 'beard'; Bats mač', Chechen, Ingush maž 'mustache' (Lafon 1952: 36);

Sino-Tibetan: Kanauri muchā 'mustache'; Ryarong tč-mɕā 'chin' (IST 60, 174)

Na-Dene: ND *wAš (P 96): Tlingit wAš 'cheek'; Ath *mēs = *wəs 'cheek' (ND 47): Carrier (e-niim-) bes 'cheeks' (P 96)

2. 'bear' ****XwarC-** :

Basque: hartz 'bear'

Sumerian: az 'bear'

North Caucasian: Dag *XIwVrčV 'squirrel, marten': Agul Hürč-al 'marten, hamster'; Nakh *Xešt: Chechen, Ingush Xešt 'otter' (Yen 101)

Yeniseian: Yen *Xas: Kot hāš 'badger' (Yen 101)

Na-Dene: ND *xuac-i: Haida Xuuašl 'grizzly bear' (SwH 274);

Tlingit Xuuc 'grizzly bear' (SwTl 196); Eyak (li-)xa? 'brown bear'; Hupa saac, Navaho, Chiricahua šas 'bear' (P 50)

3. 'crane' ****q'u r-** :

Basque: khur-lo 'crane'

North Caucasian: NC *q'q'ri+q'wV 'crane' (NC 20)

Burushaski: qəru:yo 'wading bird, heron'

Sino-Tibetan: Tibetan khrup-khrup 'crane'

RECONSTRUCTIONS

NORTH CAUCASIAN ROOTS

Reconstructed by Sergei Nikolaev and Sergei Starostin

Edited and arranged by Alex Eulenberg

KEY TO ORTHOGRAPHY

λ.....	voiceless alveolar lateral fricative (IPA [ɬ]).
λ̥.....	voiceless lateral affricate (IPA [tɬ]).
λ̣.....	voiced lateral affricate (IPA [dɬ]).
ɭ.....	velarized ('dark') [ɭ].
ʒ.....	voiced dental or alveolar affricate (IPA [dʒ]).
ʒ̣.....	voiced palato-alveolar affricate (IPA [dʒ], American [ʒ]).
..... ^{◌ʷ}	(superscript ʷ) indicates pharyngealization.
ʔ.....	voiced glottal stop.
ɦ.....	undetermined laryngeal (h ḥ ʔ ʔ ṣ).
.....	undetermined vowel.
<u>.....</u>	(any underlined vowel) indicates that preceding and/or following obstruents are doubled or tensed.

All other consonants and diacritics have their standard values. The interpretation of reconstructed vowels is not certain.

LEXICAL ELEMENTS

bač'λ (a ~ a, a, a j č' ~ č')	'paw'
băłλk'wʔλ	'leg-bone'
baʷnλčλ (č ~ čw)	'badger'

bāqčʼ (b ~ bw)	'hole, groin'
bāʼtʼʼ (b ~ bw)	'dirt, excrement'
Hěbērcʼʼ (ʼ ~ e, ʃ, o)	'wolf'
bārza	'mountain, hill'
bēlžwa (ē ~ ö, ž ~ ž)	'gadfly, wasp'
bēmāʃ (ʃ ~ u, i)	'deer, game'
balmχʼ	'back, spine'
bāngi	'stick, pole'
bīčē (ī ~ ī)	'anxiety, god'
biłžʼ (i ~ ū, ɔ, ž ~ ž)	'beard'
bīncwa (n ~ l)	'dirt, marsh, mold'
bīʼnkʼwa	'pine, fir'
bīlgwa	'hammer'
bīlʃʼwa (l ~ -m- ?)	'house'
bōnqʼʼ	'back'
bō[m]ǰe	'eight'
bōlcʼ(rʼ)	'fortification, inaccessible place'
bōlxʼ(lʼ) (x ~ λ)	'support, staircase'
bōrcʼ (ɔ ~ ə)	'paw, ham'
būnqwa (/ mūnqwa ?)	'bee'
bāmʃʼ (?)	'hoof, foot'
banǰʼ(rʼ)	'stairs, dead-stretcher'

b _Λ nq'ar _Λ (b _Λ n ~ b _Λ m-, w _Λ m-)	'crop, craw'
b _Λ [r]č'in _Λ	'(a kind of) grain'
b _Λ [šč] _Λ	'he-goat'
bwašbwa _Λ	'grandfather, father'
bwa _{rc} 'wa _Λ	'cattle'
bwa _{mb} wa _Λ	'beetle'
caha	'one'
ca _d _Λ (c ~ č)	'female'
cč'ł'h _Λ	'tooth'
cč[ł] _θ _Λ	'cripple'
c[ul] _Λ	'swine, pig'
ca _{ba} ra _Λ (x ~ e)	'granary'
cwa _r 'xwa _Λ	'weasel, marten'
cw'ł _u _Λ	'oat flour'
cw'łn _x (w)'ł (2nd ł ~ ə, ə̃, ū)	'bear'
cwčHč'łč (č ~ š)	'fox'
cw'łn? _Λ (n ~ m)	'bear'
-cwa _Λ	[nominal plural suffix (dir. and obl. bases)]
cč'w'ł'ł'h _Λ	'autumn, winter'
čəčč	'prickle, burr'
čakwa _Λ (č ~ c)	'tomorrow'
-čə	[plural suffix (obl. base)]

завѣ	'sky'
зѣ[р]ѣзѣ	'buckle, clasp'
зѣрна	'cow'
[Нѣзѣмкѣ']	'ant'
зѣдѣлѣ[?]ѣ (ѣ ~ ѣ)	'(a kind of) insect'
зѣдѣлѣ (ѣ ~ ѣ, ѣ)	'in front of, before'
зѣдѣлѣ (ѣ ~ ѣ)	'(a kind of) fruit'
зѣдѣлѣ (ѣ ~ ѣ)	'gall'
зѣдѣлѣ	'(a kind of) insect'
зѣдѣлѣ	'thick, dense'
-ѣ	[case suffix (instr.)]
зѣдѣлѣ	'flower'
зѣдѣлѣ / нѣдѣлѣ	'aunt; 1st cousin once removed; 2nd cousin'
зѣдѣлѣ	'diarrhea, excrement'
зѣдѣлѣ (ѣ ~ ѣ)	'(a kind of) grass'
зѣдѣлѣ'ѣ / зѣдѣлѣ	'beetle'
зѣдѣлѣ	'fire'
зѣдѣлѣ (ѣ ~ ѣ, ѣ, ѣ, ѣ ~ ѣ, ѣ)	'brilliance'
зѣдѣлѣ (ѣ ~ зѣдѣлѣ)	'fat' (adj.)
зѣдѣлѣ (ѣ ~ ѣ, ѣ, ѣ ~ ѣ)	'eyelash'
зѣдѣлѣ	'new'
зѣдѣлѣ	'caterpillar'

c'ðc'ʌ (ð ~ ǿ)	'tip, spout'
c'ɔnχʌn- (ɔ ~ ɔ̃, ǿ)	'search, ask'
c'urʌ	'pointed stick, wedge'
c'ũʷɪq'ʌ	'lynx, panther'
c'ũ[m]c'ʌ	'piece, bit'
c'ʌmhʌ (h ~ ʔ, ɿ)	'bow, arrow'
c'ʌrɜʌ	'marten, weasel, squirrel'
c'χrc'ʌ	'grasshopper, butterfly'
c'ʌrHʌ	'house'
c'w[ǿ]ʷwʌ(nʌ)	'dark'
Həc'wǽmʌ (1st ǽ ~ ǿ)	'eyebrow'
c'wĩʔHʌ (ĩ ~ ǣ)	'stick, branch'
c'wʌʌʌ (ʌ ~ ǣ)	'steel (for kindling fire)'
c'ǽnʌ	'prickly bush'
c'ǽrdʌ	'rain, drop'
c'ǽχ(w)ʌ-	'scratch, scrape'
c'ēk'wʌ	'sour'
c'ēʔec'ɪ (ɪ ~ ē)	'stick, branch'
c'wʌʌʌ (ʌ ~ ǣ)	'steel (for kindling fire)'
c'ǽnʌ	'prickly bush'
c'ǽrdʌ	'rain, drop'
c'ǽχ(w)ʌ-	'scratch, scrape'

c'ēk'wλ	'sour'
c'ēte'c'i (i ~ ē)	'stick, branch'
c'ēk'λ (c' ~ ʒ)	'skin'
c'ēmbλ	'god, mercy'
c'ēm'wλ (ə ~ ʒ, ü, e ; m ~ l)	'sharp'
c'ēχλ	'theft, thief'
c'ank(w)λ (c' ~ ʒ)	'wart, abscess'
c'inta (c' ~ ʒ ; i ~ ü)	'dry stalks used for kindling wood'
c'irqā	'floor-cloth, carpet'
c'īkλ (c' ~ ʒ ; ī ~ ̄)	'goat, kid'
c'ībλ	'(a kind of) berry'
c'ōmλ (c' ~ ʒ)	'tip, point'
c'ōnhλ	'goat'
c'ank'λ	'clear'
c'λχλ (c' ~ c)	'gray'
c'wēn?λ (? ~ ʔ)	'salt'
c'wētλ	'rod, vine'
c'wēnhwλ	'cane, red'
c'wīkō	'brilliance, spark'
c'w[̄]χλλ	'beam, cross-beam'
c'wānλ	'fruit'
c'λχλ- (é ~ ̄)	'be wet, flow'

ééʕ / é'éʕʕ	'kidney'
cwɣjo	'man'
éʕʕʕ	'arrow'
éʕəwɪɪ̄ (ɪ̄ ~ ʕ)	'knife, arrow'
éɣɪɣwʕ	'fumes, smell of burning'
é'ūnʕ / é'umʕ	'dirt, dung'
é'uHuʕ (u ~ ụ ; w ~ b)	'white'
é'ūɣwʕ	'alive'
é'ɒmɪʕ (ɪʕ)	'left; ugly'
é'ʌmdʕ	'(a kind of) berry'
é'ʌmʕéʕ	'butterfly'
é'ʌtʕ-	'black'
é'wāɪdʕ	'ruins'
éwə'nk'wʕ / k'e'né'wʕ	'naked, bald'
é'wɪkā / c'ɪkwā (both ā ~ ɪ̄, ə, ū)	'flea'
éwɒmhʕ (h ~ ɪ̄)	'external angle, verge'
é'ūq'wʕ(ɪʕ)	'spoon, scoop, wooden vessel'
é'wʌtʕ	'button'
é'wɪɪdwʕ	'flower, stone pillar'
ʕāʕ / mǎʕ	'relative, kinsman'
ʕʕ / ʕ'ʕ	[negative particle]
ʕwɪʕ (ɪ̄ ~ ɪ̄ ; 2nd w ~ b)	'muscle'

čə[kw]ʌ	'white, yellow'
čimHʌ (i ~ ü, ɪ, ʏ)	'goat'
čutʌ	'lizard'
č[ü]rʌ	'bit, crumb, slice'
čʌʔxʌ	'urine'
Häčšwkwē (ā ~ ā̄, ā, ā̄)	'daw, rook, sparrow'
čəHəʔē	'enclosure, fence'
? čəmajʌ (j ~ ɤ)	'jaw'
čərdəmn (rd ~ ld)	'steel'
čəHərtʌ (r ~ l)	'dirt'
? čəlxwčəʌ	'waterfall'
čərxwʌ	'body'
Häčšl't'wʌ	'a swallow; skylark'
čərbʌ / bəʔčʌ (č ~ č̄, p ~ b)	'tracking dog; bitch'
čʔnHʌ	'game, animal'
čəqəjʌ	'cloak'
čəʔrʔʌ	'plait, hair'
čəlčʌ	'fringe'
čədš (š ~ ʃ)	'pie, bread'
čəwqwxš (č ~ č̄)	'drizzle'
č[u]	'self' (3-4 cl)
čũnt[']ʌ	'wart'

[čʌʷqʷʌ]	'dirt'
čʌrčʌlʌ (both č ~ č' j l ~ ʈ)	'lizard, make'
[čʌ(N)Hʌ]	'stomach, intestines'
čʌxʷʌ (x ~ x̣)	'dung, urine'
čʷl / čl	[interrog. pronoun]
čʷ[č]mʌ	'how many'
čʷɔʷxʷʌ	'stomach; crop, crawl'
čʌxʌ / čʌɸʌ	'fade, wither'
čʷɬʰxʷʌ	'diarrhea'
čʷʌ(N)?ʌ	'grain; straw'
č[a]	[emphatic particle]
čč[n]qʷʌ	'a kind of small bird'
čəHəwʌ	'skin, bark'
ččʈʰʌ	'bread'
čʷrɛʷɒnʈ (č ~ č' j ʈ ~ ɔ)	'tambourine'
[čʃ]ʌ[k]ʌ	'to sweep, clear'
[čʃ]ʌn[čʃ]ʌ	'a swallow'
čwe(m)tʰʌ (č ~ č' ʃ)	'midge, moth; tick, bug'
čʷʌrʌ	'wax'
čʰʷʈʰʌ	'earth, dust, silt'
čʌʷʌ	'wound'
čʷɪmbʌ	'sand; road metal'

Čwřrowa (ř ~ ā, 5)	'hole'
-čw_	[nominal suffix: oblique case]
Hāč'ār'a (ā ~ ā)	'wet; fish'
Č'a°[l]x'a (č' ~ č')	'beetle, dragonfly'
Č'a°mbat'a (č' ~ č')	'sulfur'
Č'a°na	'chin'
Č'aHār'a	'hair'
Č'aHčbwa	'clay, slime'
Č'ačřř (ř ~ a)	'cane'
Č'a[l]k'a (? ~ ɔ, 8)	'hoof'
Č'ina°k'wa	'scythe'
Č'iq'wa (č' ~ č')	'rolling pin, beater; stairs'
Č'řwřř	'beam, girder'
Č'a°q'a- (ō ~ 5)	'to press'
Č'č'č'a	'pebble'
Č'a°wa (č' ~ č', 3 ~ 3)	'time'
Č'a°wř(w)a	'whey, buttermilk; bouza'
-č'[u] (č' ~ č')	[locative suffix (circum.)]
Č'u a°q'ē (u ~ o, 3 ; č' ~ č', q ~ H)	'white clay'
Č'u°ma (č' ~ č', u ~ o)	'bead'
Č'ūmř'a (ū ~ 8)	'(a kind of) plant'
Č'xkwa / Č'xk'wa	'curved, crooked'

č'aməʈn	'groin, leg'
č'amt'ʌ	'flea'
č'ʌnk'ʌ (ʌ ~ ʌ)	'trap; obstacle'
č'ʌrʌ (č' ~ č')	'(a kind of) grain'
č'ʌʌlɪt'ʌ (ʌ ~ ʌ)	'(a kind of) bird'
č'wəʌHʌ (ə ~ ə ; ɪ ~ ɪ)	'temple, cheek'
č'weʌt'ɪ (ɪ ~ ɛ)	'lead'
č'wɪʌmʌ	'span'
č'wɪʌɪʌ	'quail, small bird'
č'wɪnʌ (h ~ ɣ)	'flea, nit'
č'wʌk'wʌ	'knife'
č'əwə	'daw, magpie, starling'
č'əwʌ	'small intestine'
č'ək[']ʌ	'the young, kid; goat'
č'ɪʌmʌʌʌ	'whip'
č'ɪpɪ (ɪ ~ ɛ ; ɪ ~ ə)	'basket'
[č']ʌqʌ	'scratch, rub'
č'weʌɪ (ɪ ~ ɪ)	'willow, ash tree'
č'wʌHʌ	'string, bow-string'
dadaɪʌ	'mother'
dada (a ~ ɔ, ə)	'cock'

dāmha / dwānha	'drum'
dšəgwā (ā ~ ə, ū)	'donkey'
daŋā / taŋā	'that'
-dw[ē] (/t'w[ē])	'terminative suffix'
dweŋq'wa	'spot, patch'
dwēr-λa (~ dwēr-xwa)	'stick'
dwəq'w	'beam, log'
dwirxwō	'cloud'
dwirx(w)i	'son, child'
dwiχ ^a (i ~ ē, ī ; χ ^a ~ χ ^a w)	'snow, hoar-frost, dew'
dwōdwō	'pipe'
dwəmbə	'edge, bank'
d(w)a	[negative particle]
ðəlǝgwā	'alum'
ðō	'I'
ðwānʔi (i ~ ē)	'wine'
ðwīmha (m ~ n)	'thing'
farnē	'horse, mare'
fəʔʔe (ʔ ~ h , e ~ a)	'furrow, boundary'
finc'wa	'tick'
fāna	'mountain, shadow slope of a mountain'

fə̃ ^o (/ xwə̃ ^o)	'five'
fĩmbʌ	'dew'
fĩnkʷʌ	'flst'
fĩwʌ (w ~ b)	'grave'
gēlʌdʷʌ / dēlʌgʷʌ	'bow'
gĩtəwɡʌ	'key'
g[i]rgʷʌ	'circle, something round'
gʒ (/kʷʒ)	'emphatic particle ; and'
gūrdʌ (ū ~ ǝ)	'log'
ɡʌ	'that (beneath)'
ɡw[ʒ]and	'oat flour, malt'
ɡwēlɡʌ(mʌ)	'round'
ɡwə̃mbʌ	'raspberry'
ɡwĩ[r]ʒʌ	'noodles'
ɡwʌntʌ	'hollow, hole'
ɡwʌrʌ	'circle, round; rotate'
ɡwārrʌ	'enclosure'
ɡʒwʌrʌ (ɡ ~ kʷ)	'mosquito'
ɡ[ǝ]rĩ	'bark, rind'
ɡʒwʌrʌ (ɡ ~ kʷ)	'rock, gorge'
ɡwĩmħʌ	'cloud'

gwɨnʔʌ	'smoke'
ʃɨwʔʌ	'man, male, boy'
ʃɨrdʌ	'deer, bull, calf, kid'
ʃwəʔʌ (ə ~ ɛ ?)	'enclosure, fence'
ʃar(H)ʌ (ʃ ~ ʰ)	'hare'
ʃar[H]ʌ	'snake'
ʃɛʔʌ	'war'
ʃɛmpʔʌ (ɛ ~ ɪ)	'bridge'
ʃɨŋʌ (ʃ ~ ʰ)	'seam, pattern'
ʃɨli (i ~ ɛ)	'skin, color'
ʃwɨrʌ	'hard; severe, dangerous'
əaʔncʔʌ	'hook'
əɛʔnhʌ (h ~ ŋ)	'stone plate, layer'
əinʔʌ (? ~ ?)	'summer'
əu	'thou'
əwəɪdʌ	'pack saddle'
əwəʔtarʌ	'valley, stream'
əwɛmdʌ	'day, 24 hours'
əwɨmkʔʌ	'dumpling'
əwɨʔʌ	'stack, heap'
əə	'twenty'
əɨʔlɔi	'dirt'

ᄒᄒᄒᄒᄒᄒ	'summer'
ᄒᄒᄒᄒᄒᄒ (ᄒ ~ ᄒ)	'wheat'
ᄒᄒᄒᄒ	'pregnant'
ᄒᄒᄒᄒᄒᄒ (ᄒ ~ ᄒ ᄒ ᄒ ~ ᄒ ᄒ ᄒ ~ ᄒ)	'spleen'
ᄒᄒᄒᄒ / ᄒᄒᄒᄒ	'shoulder, arm, armpit'
ᄒᄒᄒᄒᄒᄒ	'(a kind of) worm'
ᄒᄒᄒᄒᄒᄒ	'throat'
ᄒᄒᄒᄒᄒᄒ	'street'
ᄒᄒᄒᄒᄒᄒ	'hole, burrow'
ᄒᄒᄒᄒᄒᄒᄒ	'tuber'
ᄒᄒᄒᄒᄒᄒᄒᄒᄒ (ᄒ ~ ᄒ)	'village, hut'
ᄒᄒᄒᄒᄒᄒᄒ	'wooden vessel'
ᄒᄒᄒᄒᄒᄒ	'plowshare'
[ᄒᄒ]ᄒᄒᄒᄒᄒᄒ	'frog'
ᄒᄒᄒᄒᄒᄒᄒᄒᄒ	'egg'
ᄒᄒᄒᄒᄒᄒᄒᄒ	'hare'
ᄒᄒᄒᄒᄒᄒᄒᄒᄒ	'round bread'
ᄒᄒᄒᄒᄒᄒᄒᄒ	'pear'
ᄒᄒᄒᄒᄒᄒᄒᄒ	'stool, pillow'
ᄒᄒᄒᄒᄒᄒᄒᄒᄒ	'group, together'
ᄒᄒᄒᄒᄒᄒᄒᄒᄒ	'help, relief'
ᄒᄒ[ᄒ]	'we (incl)'

hac'arā	'gray, white'
hāewānχ	'stone plate'
Hāk'wλ	'tops, bush, shrub'
Hāχ'λ (χ' ~ χ̣)	'armful'
hālāmλ (h ~ ħ ; l ~ ʔ ; 1st ā ~ ə)	'flame'
hāmc'λ	'half, middle'
hančū	'stone (round and flat)'
hēc'wēmχ	'horn, head'
hēc̣̣̣ēmχ	'butter, curds'
h[ə]	[demonstrative pronoun]
halkwū (ə ~ ə̣, ɔ̣, ɔ̣̣, ɪ̣, ɪ̣̣, ɔ, ɔ̣)	'cart'
hāžwāmχ	'(a kind of) fruit'
hī	[interrogative pronoun]
hīlčwλ-	'to run'
H[i]mq'wλ	'big'
hYmλ (Y ~ ū)	'wart, abscess'
HYrk'wλ	'man'
hYṛ̣̣χ(w)ū	'comb'
hYrsλnλ (h ~ ħw ; ɪ̣ ~ ə̣)	'crib, manger'
Howqwλ- (o ~ ɔ̣)	'scrape'
Hömzλ-	'pour, bathe'
hōrōnq'wχ (/ rōhōnq'wχ) (all ɔ̣ ~ e)	'iron, lock'

hōnk'Λ	'hiccup'
hōrōmc'ā	'stone'
hōwʔΛ	'beans'
hu	[demonstrative pronoun]
hūdhūdΛ	'hoopoe, cuckoo'
Hχc'Λ	'ring, bracelet; ring-stone'
HΛč'əqwa	'big, large'
Hχgwa	'forehead'
hΛəwaΛ-	'drink'
HΛlq'əΛn-	'grind'
hχʔHΛ	'steam'
HΛnēʔwa	'sweet'
HΛrēc'Λ	'copper, iron'
hōūλ'wa (λ' ~ λ')	'iron, horseshoe'
hwēc'wΛm- (h ~ ʔ j m ~ n)	'chew, gnaw'
hwēnʔΛ	'blood'
hwērēnq'ū	'soup'
HwērχwaΛ- / HēwχwaΛ-	'to comb'
HwēχwaΛ- (ē ~ ē)	'pour, shew'
Hwi(l)χwaΛ-	'to fly'
hwīmīzū	'honey'
Hwi[n]č'waΛ- (i ~ ü)	'cut, chop'

hwi[n]žʌ (hw ~ ho)	'good'
hw[ī]ri (i ~ e)	'morning, dawn'
hwōč'wōrʌ	'gray, yellow'
Hwʌžʌw-	'itch'
Hwʌnχʌ (n ~ m)	'sheep, lamb'
Hwʌbik'ʌ (b ~ pw)	'wooden vessel, spoon'
Hᵛᵛnəʌ	'thigh, knee-cap'
Hᵛʌrʌnśʌ (both a ~ ə, ɔ)	'red, light brown'
Hᵛšχt'ʌ	'pus, phlegm'
Hᵛᵛwžū	'goat'
hᵛʌmdʌ	'joint, articulation'
hᵛᵛrᵛnžʌ	'threshing-floor'
Hᵛi(ɪ)č'wʌ	'burn, dry, roast'
Hᵛižʌ (i ~ ū, ɔ)	'big, large'
hᵛuqʌn- (u ~ o)	'long, big'
Hᵛᵛq'ʌ-	'do; be'
hᵛᵛrʌwʌ[n]-	'bear, give birth'
Hᵛᵛəwʌ-	'be defeated'
[hᵛʌqʌ]	'swine'
hᵛʌ(w)žʌ-	'spin'
hᵛwērʌ	'a leaf-bearing tree'
hᵛwēt'ēhᵛwě (ě ~ š)	'string, loop'

h ^o wōnx ^h (h ^o ~ h ^o ; ɔ ~ ɔ̄)	'ram'
H ^o wōrq ^h -	'chop, cut'
h ^h mq ^h	'mountain slope'
h[<u>š</u>]mɔ̄ū	'saliva, mucus, herpes'
[h] <u>š</u> mɔ̄z ^h -	'to clear'
[h] <u>š</u> mɔ̄z ^h r ^h	'clear'
h ^h apwar ^h	'worm'
[h] <u>š</u> mɔ̄g ^h ʔ ^h (ɔ ~ ɔ̄w)	'burdock'
h ^h amg ^h	'window'
H ^h xw ^h - (x ~ f ; ə ~ ə̄)	'to smear, plaster'
h ^h ičw ^h (h ~ h ^h)	'line'
h ^h ī ^h ʔwīn ^h (h ~ h)	'winter'
[h]i ^h l[šw] ^h (i ~ ü)	'to extinguish' (probably 2 different roots)
h ^h i ^h m ^h i ^h ć ^h w ^h χ	'sour'
[h] <u>ī</u> mxw ^h	'learn, teach'
h ^h i ^h n ^h i ^h ć ^h w ^h š (š ~ ɔ̄)	'night'
[h]i ^h r ^h ɔ̄w ^h -	'steal, hide'
h ^h i ^h š ^h ʌn	'to knead, press'
H ^h i ^h χw ^h -	'to rake'
h ^h ī ^h n ^h ī ^h ć ^h w ^h ā	'small bird, sparrow'
h ^h ī ^h [r]čw ^h	'horse'
[h]ī ^h r ^h ī ^h šw ^h š	'tail'

[h]okwa (k ~ g)	'small; bad'
h[ɔ]ʒan-	'to clear up (of weather)'
h[ʊ]ɛa-	'to rot, to ferment'
hɔɛwa-	'untie, unbind'
hɔɛ'wɔʔx	'leather strap'
[h]ʒ[ɪ]qa[r]-	'to descend'
[h]ɔ(r)qa-	'to be good (of crops)'
[h]ɔrta	'(a kind of) ram'
[h]ɔ(r)ʒal-	'to pour, drink; to milk'
hɪ[m]ʒwa-	'to pour, to weep'
hɪɛwa-	'sharpen, whet' (< hɪɛwana 'whetstone')
[h]ɪɛ'wa / ɛ'wa[h]a	'guest'
(ha)kwɛna	'light, bright'
hama	'donkey'
hanag'wa(r)a / haq'warana	'crane; swan'
[h]awsa-	'look'
hwanʒa(t'a) (h / ʔw)	'axe'
hwɛlɛwi (ɛ ~ ʒ, l ~ n?)	'earth, clay'
hwɛt'i (i ~ ɛ)	'(a kind of) worm'
hw[i]rɪnɛɪ	'night, evening, yestereve'
hwɔr'a	'nut'
hwɛba (b ~ w)	'pole, pillar'

hə̌l sʌ	'wool'
hə̌wēsɪ (ɪ ~ ʒ, o)	'stick, firewood'
hə̌wɪmɦʌ	'string, strap'
hə̌wɪrɪ	'lake'
hə̌(w)ʌ(r) sʌ	'high, large'
-j / -ji	'tense suffix (past)'
jə̌ɪ cʌ (c ~ ʒ)	'snow'
jə̌ɪ xʌnʌ	'whetstone'
jə̌ɪ ʒɪ(nʌ)	'face'
jə̌m tʌrʌ (ə ~ ə, ʒ)	'thigh, hip'
jə̌nʌ	'debt, tax'
jə̌(r) t'wʌ-	'cut, chop'
j[ə̌] tʌr-	'let, stay, be'
j[ə̌] m]ʌ-	'listen; be silent'
j[ə̌] mɔ'ɪ	'four'
j[ə̌] r k'wɪ	'heart'
j[ə̌] c'wʌr-	'melt'
j[ə̌] k ə̌ tʌ (both ə̌ ~ ʒ)	'dung, excrement, dirt'
jə̌ɪ sʌ	'husband'
jə̌m cō	'ox, bull'
j[ə̌] mʌ'wʌ	'ash, soot'
j[ə̌] r xʌ-	'to reap'

j[ī]rχ ^o Λ-	'beat' (< j[ē]rχ ^o ΛΛΛ 'wound')
jōlχwΛ	'part of stomach'
jōr'χΛ	'(a kind of) grass'
-j[ɜ]	[nominal suffix (obl. base sing)]
jōswΛ	'take, touch'
jür-ünkĩ	'six'
jΛ / ?ΛjΛ	'mother'
jΛ	'and'
-jΛ (~ -i)	[nominal suffix (dir. base pl.)]
-jΛ	[nom. suff. (obl. base pl; same as the preceding ?)]
-jΛ	[case suffix (relative)]
-jΛ	[interrogative particle (perh. = *jΛ 'and')]
-jΛ (~ -i)	[case suffix (dat., erg.)]
jΔλwΛΛ- (λ ~ λ' ?)	'pull'
jΔšΛ (š ~ šw)	'song, verse'
jΛt'Λl-	'bind' (< jīt'ītΛ 'string')
kškΛ	'prayer'
kšl?Λ (? ~ ɣ, ʔ)	'(a kind of) ferry'
kšt'Λ	'wooden spade, spoon'
kšy (š ~ š)	'gate'
kšwčΛ (š ~ ə)	'bitch'
kšč'Λ (š ~ š, č' ~ ž)	'forelock'

kēka	'gums'
kē[m]zwa	'down, long hair'
kac'ʌ (ə ~ ʒ)	'loop, hole; button'
kāśʌ	'scythe, to mow'
kīc'ī	'puppy'
k[ī]ǰ'ī	'loop, clasp, buckle, belt'
[kɪʔʌ]	'farm'
kɪrhē	'virtue'
kĩrtwa (ĩ ~ ǰ)	'enclosure, fence'
kĩwa	'hair'
kolt'ʌ	'deep, swamp'
kō[l]k'ʌ	'shin, joint'
kōdwa	'basket, vessel'
kucʌ	'form, figure'
kunʌ (u ~ o)	'thread, string'
kūśʌ (ś ~ šw, žw, ś)	'opening, crack'
[k]ʌc'ʌ (c' ~ ʒ)	'chin'
[kʌ]čalʌ (l ~ ʔ)	? 'fetter'
kānč'ʌ (n ~ l, m)	'saddle'
kāt'ʌ	'(a kind of) vessel'
kārʌ (ā ~ ā)	'chest, belly'
kwāč'e	'paw'

kwǎnʔ _Λ (ǎ ~ ǎ̃)	'splinter, soft-wood'
kwǎʂ _Λ	'paw'
kwǎmχ _Λ	'scraper'
kwǎʁu	'hole, pit'
kwǐ (ǐ ~ ǐ̃)	'who, which'
kwǐlʃ _Λ (ʃ ~ ʔ, h)	'hand'
kw[ǐ]mc'wǐ	'sheaf, bundle'
kwǐmk _Λ	'light (of weight)'
kwǐp'wǎ	'prayer, word'
kwǐw _Λ (ǐ ~ ǐ̃, ē, ē̃ ; w ~ b ; k ~ ʔ)	'lead, iron'
kw[ǐ]ǎ _Λ	'braid, hair'
kwǎlt'ē	'temple (anat.)'
kwǎnʔǐ (ʔ ~ ʔ ; 2nd ǐ ~ ǎ, ǎ̃)	'ram'
kwǎrʂ _Λ (ʂ ~ ʂ̃)	'puppy'
kwǎrē	? 'stove'
kwǎrt'ǎ (ǎ ~ ǎ̃)	'hammer'
kwǎn(ʎ)ʂ _Λ	'shin, leg, paw'
kwǎʔH _Λ (ʔ ~ ʔ̃)	'sheaf'
kwǎniǎ _Λ (ǎ ~ ǎ̃)	'bracelet'
kwǎnǎ _Λ (n ~ ɲ, ǎ ~ ǎ̃)	'leg, paw'
kwǎ[n]dar _Λ	'jar, mortar, churn'
kwǎn[d] _Λ	'crown (of a tree); bush'

kwǎn(ʌ)tʼʌ (/kʷǎn(ʌ)tʌ)	'male; youth'
kwǎrsʌ	'shallow'
kwʌ(N)Hʌ (1st ʌ ~ ʌ)	'handle'
kwʌ ^o rxwʌnʌ	'bracelet, ring'
kʰk[u]	'nipple, female breast'
kumǔrsʌ (s / z)	'(a kind of) fruit'
kʌnʌ / nʌkʌ	'trough, cradle'
kʌrtʼʌ	'hole, opening'
kwǎʌ	'(a kind of) vessel'
kwĩ ^o kwʌnʌ	'sloe, plum'
kwĩ[r]tʼʌ	'kidney, bladder'
kwǔtʼʌ	'short'
kwʌmtʼʌ	'small stack, sheaf'
kwʌnʌ	'conditional particle'
gʌzā	'pick, hoe'
gʌʒinʌ (a ~ ə, ʒ)	'jar'
gʌlʌ (a ~ ə)	'stick, pole, tree'
gʌlʌgʌ	'stick'
gārdʌ (ā ~ ǎ)	'vessel'
gʌʒĩ (a ~ ə)	'hunger'
kē ^o ʌ (k ~ g)	'goat, kid'
gǎrhʌ (ǎ ~ ǎ)	'hill'

gimugʌ (/ g'igumʌ)	'egg'
gimfū (ū ~ ǣ)	' <i>godekan</i> '
gōnzʌ (ō ~ ǝ ; ʒ ~ z, ʒ')	'threshold, frame, staircase'
k[ɔ]ʰntʌ	'stack'
gōrʌ	'cup, plate'
gōrʌ (ō ~ ǣ)	'stick, pole, piece of a log'
gugu / g'igu (/k')	'cuckoo'
gu[n]éʌ / k'u[n]ʒʌ (?)	'sheaf, bundle'
gūldʌ	'tickling'
gǔp'ē (ǔ ~ ǝ, ũ, ǝ)	'jar'
gʌgʌ (ʌ ~ ʌ)	'grain, seed, fruit stone'
gʌlʌ (1st ʌ ~ ʌ ; 1 ~ ʒ)	'horse'
[gʌl(ʌ)cʌ]	'weapon'
kwǎ́cʷʌ	'mare'
gwǎ́čē	'bitch, dog'
kwǎlgʌ	'spine'
gwērʌ (t ~ d)	'hawk'
gwǎ́cʌ	'arm'
gwǎlʒ[ɪ]	'fang, canine tooth'
gwǎrdʷʌ	'shirt, coat'
gwǎ́[ɪ]gwʌ	'skull; back of the head'
gwʌ́cʌ	'lean'

HXgwXZΛ	'beak'
gwΛrZΛ	'(a kind of) dumplings'
g ₁ gwΛ	'flower'
g _{or} c'ž (ž ~ ȝ, ǝ)	'a small bird'
-gΛ	'locative suffix (cont.)'
gΛj (/gwΛj)	'emphatic particle'
gwžp'Λ (ə ~ ʒ)	'group, heap'
gwa _{nd} ž	'hole, pit'
gw _i tžnΛ	(?) 'plow'
gw[ǝ]e _Λ (/e _Λ wǝgΛ, gwǝ _Λ gΛ)	'left'
gwΛ _C wΛ	'button'
k'žčwΛ	'hammer'
k'alHΛ (l ~ ȝ)	'white'
k'[ǝ]mΛ (m ~ mb ?)	'cream, butter'
k'[ž]mk'Λ	'rash, smallpox, measles'
k'žntΛ	'big knife'
k'žnt'Λ	'drop'
[k'an[ž]Λ]	'shawl, kerchief'
k'arΛ	'stick, log'
k'ar?Λ (a ~ ǝ, ə j ? ~ ʔ j r ~ l)	'lake'
k'ēmΛ	'armful, handful'
k'žrk'žnΛ	'egg, grain, berry'

k'ə č'ʌ (č' ~ č')	'clitoris, vulva; hole'
k'əɾʌ	'black, coal'
k'ɪɹʷʌ	'little'
k'õnɾʌ (ɾ ~ ʔ, h)	'handle, grip'
k'õk'ʌ	'log, billet, firewood'
k'õnk'ʌ	'little stone; fruit stone'
k'õwčʌ	'coat, shirt'
k'u[ɪ]k'ʌ	'cake'
k'uɾe (u ~ o)	'key';
k'umk'u[m]ʌ	'kettle'
k'urč'ʌ (č' ~ č')	'dung (of small animals)'
k'ük'wʌ	'edge, summit'
k'ũmčɿ (-o)	'hook, curved'
k'üt'u / gütu / gätu	'cat'
k'ǎc'ʌ / c'ǎk'ʌ	'tail'
k'ʌk'ʌ	'tick, insect'
k'ʌʷmč'wʌ	'molar, canine tooth'
k'ǎmʌčʌ (č ~ čw)	'lizard'
k'ǎnt'ʌ (ǎ ~ ǎ, n ~ m)	'soft'
k'ʌnʌč'ʌ (č' ~ č')	'tumor, abscess'
[k'ʌɾʌt'ʌ]	'group'
k'ʌsʌ	'finger'

k'ʌdwʌ	'bush'
k'waɭʰʰʌmʌ	'check, chin'
k'wǎrʌ	'earthenware vessel'
k'wǎrnʌ	'the young (of animals)'
k'(w)ǎdʌ	'hen'
k'wēm̥t'ī (ī ~ ǝ)	'lip'
k'wǎtʌ	'skein, hank'
k'wǎr[ī]ʌ	'big jar'
k'wim̥c'wǎ	'puppy'
[k'winʌ]	'small bone'
k'wirʌ (i, ʌ ~ ī, r ~ l)	'crop, craw'
k'wīm̥t'ʌ	'mole, freckle'
k'wǎfʌ	'urine'
k'(?)wǎt'ʌ	'short-eared ram'
k'warǎʌ (ǎ ~ ǝ)	'heel, hoof, foot'
k'war̥k'ʌ	'something round or rotating'
k'ǎc'wʌ / c'ǎk'wʌ (ǎ ~ ǎ, ǝ)	'spleen, intestines'
k'ǎmbʌ (k' ~ g')	'kidney'
k'ʌr̥ʌk'ʌtʌ	'(a kind of) fruit'
ʰǎm̥c'ʌ	'a stinging insect'
ʰeʰbʌ	'three'
ʰwǎm̥c'wʌ (c' ~ ʒ)	'dirt'

ḵwǎnhʌ (h ~ ɣ)	'stomach, belly'
ḵwǎrʌ	'wheel'
ḵǎbʌ (ǎ ~ ɔ)	'breeze'
-ḵʌ	[locative affix (inter)]
ḵwǎwcʌ	'skin'
ḵwǎwʌ (ǎ ~ ɔ)	'fat, grease'
ḵǎmʌ	'day (two days) after tomorrow'
ḵwǎn[h]ǎ	'wool'
ḵweʔmʌ	'liquid (adj.)'
ḵǎrʌ	'horn'
ḵwǎhǎ (?? ~ ǎ)	'mold, pus'
-ḵʌ	'locative suffix (super)'
ḵʌpǎ (ǎ ~ ɛ)	'leaf'
ḵʌpʌ (?? ~ -ǎ, ǎ)	'plate, slab'
ḵʌrqʷǎʌ	'cap'
ḵʌhʌ (h ~ h)	'sour cream; yeast, ferment'
ḵʌmʌ	'lid, cover, roof'
ḵʌmʌ (ǎ ~ ǎ, ɔ)	'tops (of plants)'
ḵʌpʌ	'thin'
ḵʌhʌ (~ ɛ ; ? ~ ?)	'leaf'
ḵʌhʌ (qʷ ~ ɛʷ)	'roof, shed'

མ'འཛམ	'trap'
[མ'འཐ'མ]	'jaw'
[མ'མ]ཐམམ	'dung'
མ'མམམ (མ ~ བ)	'shed, barn, granary'
མ'མ[མ]མ	'ear (of grain)'
མ'མམམ	'malt'
-མ'(མ)	[locative suffix (sub)]
མ'eམ (e ~ བ)	'a kind of bird'
མ'མམ (a ~ འ)	'lamb'
མ'མམ	'a kind of worm'
མ'མམམ (མ' ~ མ)	'rake'
མ'མམམ (མ / མ)	'shelf'
མ'མམ	'garden bed, boundary'
མ'མམམ (both མ' ~ མ)	'woodpecker'
མ'མམམ	'saddle'
མ'མམམ (མ' ~ མ; མམ- མ མ ~ མ, མ)	'bridge'
མ'མམ (མ ~ མ, མ)	'waist'
མ'མམ	'wall'
མ'མམ	'garlic'
མ'མམ (a ~ མ, མ མ ~ མ)	'ash, dust'

lǎtʌ / tǎlʌ (*Hǎtǎlǎ ?)	'gutter, trough'
lǎ(r)hʷʌ	'ear (body part)'
lǎk'ʌ (l ~ t)	'grain, fruit stone'
lēm̄c'ʌ (l ~ t)	'lick'
lǎq'ʌ	'(a kind of) vessel'
lǎq'ʷwʌ (l ~ t ; ē ~ ē̄)	'(a kind of) bird'
lǎχʌ / tǎχʌ (?)	'bracelet, chain'
l[ī]rǎʌ (l ~ t ; ǎʌ ~ c'ʌ)	'a heap (pyramid) of sheaves'
lǎnʌwē	'pigeon'
lǎkʌ (l ~ t ; k ~ g ; o ~ t)	'ear (of grain)'
lǎǎʌ	'white or yellow metal'
lǎl̄c'ʌ	'dirt, clay'
lǎmǎǎi (-ǎ)	id.
l[ǎ]nǎʌ (l ~ t)	'(a kind of) grass'
lǎsʌ	'gullet'
lǎgʌ	'belly, intestines'
lǎ[h]ǎǎʷʌ / [h]ǎǎǎʷʌ	'liver'
lǎpʌ (l ~ t)	'brilliance, brightness'
lǎχʌ (l ~ t)	'low'
-t-	[causative suffix]
-ta (a ~ ǎ, ǎ)	[durative suffix]
tǎǎ	'slave'

ʔambagʌ	'sheep'
ʔamʌ (~ ʔamʔʌ)	'lick'
ʔardʌ	'a kind of berry'
ʔawqʌ (/ [ʔ]ʂwqʌʔ-)	'much, many'
ʔ[ʂ]	[a conjugative particle]
-ʔʂ (/ -ʔʂj ʔ)	[nominal suffix (obl. base sing.)]
-ʔ[ʂ]	[case suffix (dat.)]
ʔʂ[n]ʔʷʌ	'skin'
ʔʂʔekʷʌ (/kʷʂʔʔʌ) (ʔ ~ ʔ)	'palate, mouth'
-ʔʰa	'gerundive suffix'
ʔimqʷʌ (ʔ ~ r)	'shame, anxiety'
ʔūgā	'bone'
-ʔʌ / -aʔʌ	[nominal suffix (dim. base pl.)]
-ʔʌ	[nominal suffix (obl. base pl.; same as the preceeding?)]
ma	[a prohibitive particle]
ma (/mě)	[an interrogative particle]
ma	[gerundive (continuous suffix)]
Hāmānʔʌ	'door frame, threshold'
māgʌʂʷʌ	'curds'
mā ćʌ(ʔʌ)	'clay; pebbles'
māʔ ʂʌ	'mucus; pus'

mālšu (a ~ ă, ǐ)	'pipe, gut, (blood) vessel'
mălšwλ	'slope, face'
mālɣwē	'pasture, farm'
ma[l]λq'l'λ (a ~ ə)	'snake, lizard'
māmλ (ā ~ ǝ)	'female breast'
mănoλ (/əŋnma ?) (ă ~ ă, ǐ)	'lid, cover, roof'
mā[q]wλ	'word, song'
māq'λ	'blade; plowshare'
mărcλ (~ ă, ǝ)	'everybody'
măr[ɔ]λ[wλ]	'cat'
mărxwλ	'rain'
marɣalλ (both a ~ ə ; l ~ ɫ)	'snowdrift, snow'
mārc'λ (a ~ ə, ǝ)	'sheep'
măswλ (ă ~ ǐ, ă, ǐ)	'milk product'
maśwλ (a ~ ə)	'price, bargain'
māλλ (a ~ ă, ǐ)	'study, teaching'
maɣū (a ~ ə ; ū ~ ǐ)	'marrow'
mēhwλ	'extremity (anat.)'
măhă't'λ	'dirt'
mălc'ɣ	'tongue'
măl'λ	'earth, place'
m[ă]l'ə (e ~ ă)	'cold, hoar-frost'

mě q'w _Λ	'sprout, shoot'
mě χwā	'tale'
mě _n ž _Λ (ě ~ ž)	'oak-tree'
mě _r -λ'w _Λ	'gorge, ravine'
mer(H) _Λ (e ~ ö)	'(a kind of) berry'
m[ě] _s _Λ	'hair, down, wool'
mē _λ _Λ (ē ~ ö, ə)	'hem (of a skirt)'
mēχ _Λ	'iron'
mēž _Λ	'shin, thigh, knee'
məg _w _Λ (ə ~ ē, ö)	'splinter'
maq _w _Λ (ə ~ ā)	'birch, oak'
mā _r -λ'Λ (ā ~ ž)	'nose, beak'
mət'Λ	'face'
mič'Λ (č' ~ č')	'hoof'
mič'w _Λ (č' ~ č')	'meadow, mountain slope'
mīg _ř _Λ (i ~ ü, g ~ k')	'roller (for rolling roots)'
miə _w _Λ (i ~ ř, ž, j, ə ~ ɛ)	'back'
mYh _Λ	'birch, alder'
mihw _Λ r _u	'(a kind of) odorous grass'
Hi _m i _c 'Λ (c' ~ ž)	'end, edge'
(m)k'Λž _Λ	'beard, moustache'
mi _l a _w _Λ (l ~ ž)	'worm'

mṭqʌ	'moustache'
mṭrʕʌ (ṭ ~ ṭ)	'knife, sickle'
mṭrʕʌ (ṭ ~ ṭ)	'male'
mṭrʕʌ	'string, bast'
mṭtʕʌ	'nipple, growth, excrescence'
mṭzʌ (/ mṭzmṭzʌ)	'fly (insect)'
mṭzʌ	'sweet'
mṭ	'this, that'
mṭʕu / ʕṭmu (ʕ ~ ʕ')	'strap, fiber, patch'
Hṭmṭrʕʌ	'end, edge'
mṭlʕʌ	'wind'
mṭlʕʌ	'husband; poor-man, farm-hand'
mṭrcʕ	'point, spike'
mṭrʕʌ (ṭ ~ ʕ)	'root'
mṭwʕʌ	'odor, whiff'
mṭxʕʌ (x ~ f, ṭ ~ ṭ)	'price, pay'
mṭʕʕʌ (o ~ o)	'beard, chin'
mṭqʌ	'barley'
mṭrʕṭ (ṭ ~ ṭ, z ~ zʕ)	'angle, corner'
mṭʕʌ	'gravestone, grave'
mṭ[ʕ]ʕʌ	'tail'
mṭʕwʕ (~ ʕ)	'moisture'

m[ö]k'wΛ	'child, young'
mōhχΛ	'time'
m[ɔ]c'Λ	'braid, hair, beard'
m <u>ɔ</u> Λ	'armful, handle'
m <u>ɔ</u> λ'ɔrΛ	'a kind of tree'
m <u>ɔ</u> l'ʒwΛ	'a kind of grass'
mōngwΛ	'nest; bed'
mōnqΛ(rΛ)	'chest, breast'
m <u>ɔ</u> Λ	'plowshare, harrow'
m <u>ɔ</u> q'wě	'oak tree'
m <u>ɔ</u> r'qwΛ	'stripe'
m <u>ɔ</u> rχΛ(rΛ)	'wool'
m <u>ɔ</u> χΛ	'bundle'
m <u>ɔ</u> ʔΛ (ɔ ~ ɔ)	'fat, grease'
muhwΛ	'grain'
murč'Λ (u ~ o)	'stick'
muryuʔΛ	'besom'
musurΛ (both u ~ o)	'shroud, cerement'
muʔa1Λ	'mountain'
mχxi (χ ~ <u>χ</u>)	'hostage'
mālΛwΛ	'sun'
m <u>λ</u> χ'wΛ	'son-in-law'

mΛzʷΛ	'vessel, spoon'
mΛʔΛlΛ (l ~ ʔ)	'twisted thread; girdle'
mΛʔᵐΛ (ʔᵐΛmΛ)	'(a kind of) berry'
mΛʃwΛlΛ	'nose'
-nΛ	[case suffix (gen)]
-na	[past tense gerundive suffix]
nǎnǎjΛ	'female breast'
nǎnΛ	'doll; pupil of the eye'
nǎ[ə]wΛ (ǎ ~ ǎ̃, ǎ̄)	'behind'
na(N)HΛ (a ~ ē, ǎ̄)	'bee'
nǎᵐλ'wΛ (ǎᵐ ~ ǎ̃ᵐ)	'blue'
nǎ̃lǎwǎ̃	'earth'
nǎ̃mzΛ	'louse'
Hǎnǎwǎ̃'ǔ	'sleep (n.)'
[nǎkwΛ]	'oath'
nǎ̃λ'Λ	'milk, butter'
nǎ̃o'wū (u ~ ē ?)	'chaff'
nǎ̃tΛ	'eyebrow, eyelash, forehead'
nǎwq'ǔ	'tear; pus'
-na	[case (ess. or lat.) or adverbial suffix]
ni	[interrogative pronoun ('which')]
-ni	[nominal suffix (onl. base sing.)]

níéΛ / éíηΛ	'sickle'
nīηΛ	'mother'
níwq'Λ	'(a kind of) berry'
nī	'I'
nīwc(ω)Λ	'prince; son-in-law'
nóčΛ (č ~ é)	'shame'
nó ^o χ'wΛ	'gadfly, horsefly'
nóíχΛ	'diaphragm, placenta'
nówč'ū (č'ōηwū ?)	'flint'
nīwšwΛ (ī ~ ū)	'sheep (about 2 yr. old)'
n[š]	[a conjunction]
nómkΛ (/ kōηmΛ)	'skin, dandruff'
nūsΛ (ū ~ ō)	'bride, daughter-in-law'
núkωΛ (ú ~ ū)	'knee'
núq'wΛ (ú ~ e)	'dirt, earth'
nūr-q ^o wā	'oats'
nΛ	'this, that'
nΛ	[interrogative particle (= *nš 'and' ?)]
-nΛ	[nominal suffix (dir. base pl.)]
nΛχ'u (Λ ~ Λ ?)	'sweetbrier'
nāmswΛ	'cloth, fabric; spider's web'
nā[r]χΛ	'oak tree, tree'

пāгасл / пāсарл	'cucumber'
пл ^о т'л	'forehead, face'
паžл (ž ~ ž)	'cabin, shack'
панq'лlħа (ħ ~ ž)	'bark'
пā[n]ž ^о л	'hen'
papл	'butterfly'
па ^о рл (а ~ а)	'clay, dirt'
па ^о се (с ~ сw)	'water-jug'
пāрл	'lightning'
парбл	'light, soft'
пар[χ]л	'to flit, flutter'
пāt'л	'(a kind of) vessel'
пēл (ē ~ ō)	'onion'
пēn[c'w]л	'eyelash'
пēχл	'bubble, blister'
па ^о ž ^о рл (both p ~ p')	'foam'
па ^о т'л (т ~ ž)	'(blood) vessel, sinew'
п ^о nc'л	'resin, juice'
п ^о л ^о л (л ~ л')	'(a kind of) plant'
п ^о лрл	'beech, plane tree'
п ^о л ^о л	'feather, dawn, hair'

Hĩpĩlχwλ	'dirt, excrement'
põHwλ (õ ~ ỹ)	'to blow'
põrλ (r ~ l)	'bee; butterfly'
põχ ^o λ (õ ~ ẽ)	'dust, soot, steam'
pu[l]šwλ	'bubble'
[purλ]	'to fly'
pλr[χ]λ	'a flash; to blaze up'
pλr ^Δ χ ^o λ / pλrp ^Δ χ ^o λ	'bubble'
pwš ^o χ ^λ (š ~ š, ʒ)	'young, boy'
pwšngzλ	'cattle'
pwaðλ	'trousers, clothes'
pwaðλ (-ɔ-, -dw-)	'excrement, dirt'
pwtĩtλ (ĩ ~ ĩ, ʒ ~ l)	'poplar'
pwtĩrqwλ	'fruit'
pwtšq ^o λ	'crow'
pwt[ʒ]t'i (i ~ ē)	'vulva'
p(w)λr ^u cλ	'wooden plough'
baλ (a ~ ə, l ~ ʔ)	'wool'
baλ[tk]λ	'horse'
bāʔho (b ~ bw, pw, b)	'edge'
baʔλc'λ (a ~ ə)	'(a kind of) worm'
běk'wλ (b ~ pw, bw, pwěk'λ)	'pen, enclosure'

běk'wλ (b ~ pw ; ě ~ ě)	'part of face, mouth'
bēr[tk]λ	'rag'
b[ē]t'λ	'worm'
bəgλ	'dawn'
begwλ (e ~ ɜ)	'side'
bəχ'λ (χ' ~ χ)	'cattle-shed'
bəbwλ (ə ~ ɵ)	'bread'
bə[ʔ]əʔλ (b ~ pw ; both ə ~ ɜ)	'hill, rock'
[bĩč'λ]	'navel'
birčλ (i ~ ē, ĭ)	'rich; god'
bǝhu	'owl'
bǝχ'λ	'side'
bǝʔλ (b ~ w)	'chamois; cattle'
bǝrgwλ (b ~ w ; ɛ ~ q ; ɵ ~ ɜ, ə)	'stall, shed'
buχ'λ	'shoulder, handle'
būrλ (ū ~ ɔ)	'gray, brown'
burλzλ (u ~ o)	'(a kind of) tree'
Hǝbǝχ'wλ (b ~ w)	'ram, he-goat'
-bλ (b ~ w)	[negative suffix]
-bλ	[nominal suffix (dir. base pl.)]
bλnsλ (?)	'light, swift'
bλbλ	'beard, hair'

bargʌ (b ~ w ; k')	'(a kind of) wild animal'
[bʰsʌ]	'night'
[bʌsʌ]	'orphan'
[bʌswʌ]	'fish'
bʌχʌ	'spade, shovel'
bwabwʌ	'mother, grandmother'
bwərgwʌ (bw ~ b)	'palm of the hand'
bweʷwʌ	'deaf'
bwaʷnɜʌ	'twig, bar'
bwiʰsʌ	'cat'
pʰāɪqʌ / qāɪpʰʌ (q ~ ɕ)	'overcoat, fur coat'
pʰaʔʌ (/ ʔupʰʌ)	'kiss'
hɛpʰɛɪcʰwɪ̄ (ɪ̄ ~ ə)	'dirt'
pʰʌhʌtʌ	'feather'
pʰwɛʰkʰʌ	'palm, hand'
Həpʰwəmtʰʌ	'duck'
pʰwiʰ[N]hʷʌ	'(blood) vessel'
qāmʔʌ (? ~ h)	'wax'
qāncʰwʌ	'dirt'
qāɾʌ (ǎ ~ ɔ)	'shoulder; chest'
qɛʔhʌ	'wing'
qɛɾdi	'linden, birch'

qəɫʌ	'house'
q[əʔm]t(ʔ)ʌ	'back of the head'
qi(N)Hʌ (i ~ i̯, ü, ü̯)	'horn'
qəʔnɪhʌ (h ~ ʔ)	'excrement'
qodoʔʌ	'friend; nephew'
qöʔʌ	'pear'
qöda (qö ~ χö)	'brisket'
-qə(-ʔʌ) (ə ~ ö)	[nominal suffix (dir. base pl.)]
qəʔnɪhʌ (h ~ ʔ, ʔ)	'yard, building'
qərhā (h ~ h)	'pea'
qumqʌ	'grain'
quʔHʌ (u ~ o)	'a heap of sheaves'
qürʔʌ	'field'
qʌnʌ	'woman'
qwa ^o nśwā (q ~ ɐ)	'back of the head; crust'
qəʔqʌ (both q ~ χ)	'trough, basket'
qəʔjʌ	'oath'
[qʌ]iɫsʌ (i ~ i̯)	'spade, spoon'
qəɫpʌʌ (qə / χə)	'lung'
qʌ[i̯]t'i (q / ɐ)	'Adam's apple; uvula'
qəʔəʔʌ	'collar, neck'
qəʔrʌ	'egg'

qwa ^o sa	'elbow, arm'
qš ^h ʔ	'bark, shell, hide'
qə ^h ʔ (ə ~ ə, ʔ)	'planking (for the ceiling)'
qə ^h sʔ	'to scratch'
q[š]tʔ	'handful, palm of the hand'
qš ^h lqʔwa	'coat, chain mail, hauberk'
qš ^h ʔʔ	'cough'
[q ^o]əmbəʔʔ	'son-in-law; guest'
-q[ʔ]	[locative affix (circum, post)]
qš ^h ʔʔʔ (š ^h ~ š ^h)	'heifer; bull-calf'
qš ^h dʔ (q ~ o ?)	'ravine, mountain stream'
[qʔʔʔ]	'(a kind of) grass'
qwaš ^h čwa (qwa ~ ʔʔ ; š ^h ~ ʔʔ ; č ~ ž, ž(w))	'corn'
qwaš ^h ʔwa	'vessel, pot'
qwaš ^h ʔʔ (ə ^o ~ ʔʔ)	'stick, stake, branch'
əwaš ^h d[ʔ]	'devil'
qwaš ^h wa	'scab, tetter, herpes'
qwa ^h ta (ə ~ ʔ)	'large intestine'
qwaš ^h ʔʔʔ	'Adam's apple, crop, beak'
qwa ^h ʔʔqwa	'part of stomach'
qwa[ʔ]ʔʔʔ (ʔ ~ ʔ)	'gorge, ravine, crack'
əaž ^h ʔ	'calf'

əwē[r]bwa	'stack'
əwḗʒa	'hair, mane'
əwɪ́ʒa (i ~ ɛ, ʒ ~ ʒ)	'skin, hide'
əwɪ́nəwa (ɪ ~ ɛ)	'(a kind of) pigeon'
əwa-	'tomorrow'
əwamha (h ~ h)	'sheaf'
əwama	'thick, dense'
ə́kwə	'ram (2 yr. old and older)'
ə́nʒa	'cross, idol'
ə́nt'a(ja) (ə ~ ə, ʒ)	'short'
ə́wa	'roof, ceiling'
ə́lʒə (i ~ ɛ)	'thorny bush, thorn'
ə́mda	'bug, bed-bug'
ə́mha (/ə́nha)	'raven, crow'
ə́wa (ʒw ~ ʒ, ʒw)	'morning (evening?)'
ə́ta	'rash, freckles'
ə́t'a	'stone'
ə́nəwa (ə́ ~ ə́, ʒ)	'nose, face'
ə́ba (p ~ bw, xw)	'paw, wing'
ə́lʒa (l ~ n)	'skin'
[ə́w]ə́mɔ́t(')a	'mucus (from the nose)'
q'ə́c'í (í ~ ʒ)	'piece'

q'ac'o (a ~ a, a, a ; o ~ a)	'chin, mouth'
q'[a]mčʌ	'balcony, verandah'
q'əm q'a	'knee; thigh'
q'əm[s]ʌ (š ~ ə)	'cartilage, gristle'
q'š°mʌšwʌ	'one of several wives'
q'a°nk'ʌ	'hedgehog; hare'
q'aq'a	'dirt'
q'aq'arʌ	'throat'
q'arHʌ	'cousin'
q'asʌ (a ~ a ; a ~ a, š)	'shelf'
q'āʔʌ	'turnip, radish'
q'e1ʔʌ (l ~ ʔ)	'bitter'
q'ērʌ	'dirt'
q'ē°žʌ (ē ~ ō, ž ~ ž)	'(a kind of) grass'
q'ā°mħō	'trough, wooden vessel'
q'[ō]°rč'ʌ	'variegated'
q'š°c(w)ʌ	'he-goat; kid'
q'ōmkā	'calf'
q'[ō]°nğʌ	'pitchfork'
q'š°rʌ	'empty'
q'ōtʌ	'top (of plants); bush'
q'u°nt'ʌ (n ~ l)	'a kind of vessel'

q'určʌ (u ~ o)	'peach'
q'úrʌ	'swamp, peat'
q'ʌrʌ	'felt cloak'
q'ʌrʌ	'(a kind of) grass'
q'ʌžʌrʌ (ž ~ ž)	'hedgehog'
q'w[ə]k'ʌ-	'squeeze, press'
q'wanʔū	'flat surface'
q'wəʔʌ	'cow'
q'wəʔlʂ (l ~ ʔ ; ʂ ~ ʂ)	'mouse'
q'wəʔlč'ʌ (ə ~ ʂ ; ʌ ~ ʌ)	'a kind of insect'
q'wəʔlč'i (i ~ ʂ, ʂ)	'top (of a boot), boot'
q'wəʔntʌ	'elbow, knee'
q'wilc'ðmʌ (m / n ; ʂ ~ ʂ)	'mule'
q'wīʔʌ	'stone, rock'
q'wšlha	'board'
q'wšrdʌ	'hedgehog'
q'wššʌ	'ladle, basket, shovel'
q'wəʔʌ (ʂ ~ ʂ)	'bark'
q'wəʔrč'ʌ (~ ʂ ; č' ~ č')	'grain, flour'
q'wšl(ʌ)q'wʌ	'seed, grain, egg'
q'w[ʊʔ]	'two' (prob. *q'wīʔ)
q'wʌmʔʌ (? ~ ʔ)	'grain'

q'wλnλ	'crop, Adam's apple'
q'wλ ^o q'λ	'hill, post, pillar'
q'wλ ^o r-tū	'(a kind of) vessel'
q'wλt'q'wλt'λ / k'wλt'k'wλt'λ	'woodpecker'
q'ajλ (?)	'thing'
q'amhā	'long hair; mane'
q'amčλ	'braid, plait, mane'
q'ǎpλ	'cap'
q'ǎq'ǎtā	'body'
q'ēmdž (q' / q'w)	'wall'
q'īnʔλ (i ~ ū j ʔ ~ ʔ)	'louse, nit'
q'īrλ	'greedy'
q'ītλ / q'it'λ	'dust, soot'
q'īwq'λ	'maggot, moth; worm'
q'ǎrǎq'wλ	'crane'
q'ur-t'λ (q' ~ q ʔ)	'brood-hen; cock'
q'λhwλrλ	'gray, brown'
q'λrλ	'top (of a boot)'
q'λrλq'λt'λ	'magpie, crow'
q'λdλ	'freckles'
q'wǎč'ǎ (č' ~ č')	'wineskin; sack'

q'wə ^o ə (a ~ i, ɛ)	'raven, crow, jackdaw'
q'wə ^o nq'wə (ə ^o ~ ɛ ^o)	'hard'
q'wə ^o r't'ɬə	'belt; belt-loop, sheath'
q'wə ^o r'ʔ (ʔ ~ ʔ)	'narrow'
q'wə ^o nq'ə	'crane, heron'
q'wə ^o r'qə	'knot'
q'wə ^o mə	'grain, fruit-stone'
q'wə ^o mt'ə	'trap'
q'wə ^o lq'ə	'group'
[q'wə]ʔχ (-f- ʔ)	'throat'
q'wə ^o lɬə / ɬlq'wə	'heel, hoof, foot'
q'wə ^o səwə (ɬ ~ ə, ə ; a ~ e)	'wooden shovel, spoon'
q'wə ^o ɬ'wə	'sleeve, elbow, armpit'
q'wə ^o t'ə	'saddle-girth, harness'
q'wə ^o nɬə (ɬ ~ ɬ)	'lock, temple'
q'wə ^o r'q'ə	'frog'
r	[class marker (IV sing., III/V pl.)]
-r(i)	[durative suffix]
ra (a ~ ə, ɔ)	'and'
ra	[interrogative particle (prob. same as *ra 'and')]
raɬwə	'milk; butter'

r[<u>a</u>]nλ'wa	'loop; hinge'
r <u>a</u> χwa / χwa _r λ	'perch, pole, log'
raχa[ʒw]λ	'chain'
rǎχλ	'a measure'
remλ'λ	'cubit'
re _n χwa	'butter; milk'
rě _o λ	'furrow, boundary'
rěq'wa (r ~ l ; <u>ě</u> ~ <u>ü</u> ; q' ~ ɐ)	'bladder'
rěšλ	'word'
rēxwa (e ~ <u>ē</u>)	'stick, beam, tree'
rēχλ	'pack, load'
rěžwa (<u>ě</u> ~ <u>ž</u>)	'goat wool'
-r[ǎ]	[nominal suffix (obl. base sing.)]
ražwa (r ~ l)	'hind part, bottom, anus'
r <u>a</u> λλ	'oats, wheat'
r <u>a</u> [r]χλ (r ~ l)	'sheep, ram'
riλwa (i ~ ʒ)	'brass'
r _l λ'wa (λ' ~ λ̣ ; ʒ ~ ʒ̣)	'marten, squirrel, mouse'
rīr <u>ž</u> wi (ī ~ ē ; r ~ l)	'girl'
r[ī]šwa	'tree, (fire) wood, stick'
rišλ / širλ	'heifer'
rĭHĭswol / swĭrHo (all ĭ ~ ě)	'year; old'

ṛĩmswē (ě ~ ǵ)	'side, rib'
ṛōlc'ḷ (c' ~ ʒ)	'(a kind of) tree'
ṛōḷ'ḷ	'hand; bone'
ṛūk'wĩ	'axe'
ṛūḷ'ĩ (ĩ ~ ü)	'meat, flesh'
-ṛḷ	[locative suffix]
-ṛḷ	[nominal suffix (dir. base pl.)]
[ṛḷḷḷ]	'corpse'
ṛḷḷḷ'wḷ	'cloud'
ṛḷq'ḷ	'hill, mountain'
ṛḷwswĩ (ĩ ~ ē)	'cuprite, red copper'
ṛḷxwḷ (ḷ ~ ḷ)	'herd, cattle'
ṛḷʔē	'summer, spring'
ĩ	[class marker (sg.)]
ḷat'ḷ	'mane, plait'
ḷarḷḷ	'harrow'
ḷēbḷ (b ~ w)	'foot'
ḷē'wḷḷ	'small stone'
ḷō'ḷḷ (ḷ ~ ḷ, ḷ ~ ḷ)	'sledge, sleigh'
ḷurḷḷ (u ~ ǵ)	'grumbling, growling roar'

ɬlʷdʌ (d / t' ?)	'tickling'
ɬʌmɬʌ	'noise'
ɬwanʌt'ʌ	'butterfly, beetle'
ɬwerdʌ (ɬwɛdʌ ?)	'rain'
ɬwɨrʰʌ	'noise, rumble'
ɬwɔnʌ	'elm, tree'
ɬwɔʷrɕ(')ʌ	'deer, game'
ɬwʌtʰʌ (ɬ ~ ɐ)	'fallow-deer'
sɨrʌsʌ	'hoar-frost; icicle'
sɨwɨrʌ	'(a kind of) odorous grass'
sɨtɨmʔʌ (ʔ ~ ?)	'(a kind of) odorous grass'
sɔsʌ(rʌ)	'rye, oat'
sɔrʌ (s ~ sw, cw)	'dirt, soot, sand'
sʌrʌ	'gray'
sʌrsʌ	'germ (of an egg); nit'
swɛmʌ	'straw'
swɛsʌ	'bride, daughter-in-law'
swənʔʌ	'yesterday'
swɔp'ʌ	'a kind of grass'
swɨɕʌ(rʌ)	'father-in-law; cousin'
swɨtʰʌ	'(a kind of) odorous grass'
swɨlʰʌ (h ~ ʰ)	'stall, shed, barn'

swĩnē	'barberry'
swĩwĩ (2nd ī ~ ū)	'edge'
swa1ʔa (1 ~ ʔ)	'hoar-frost, cold'
swarHa	'day after tomorrow'
swara	'cheese brine, alum, intoxicating beverage'
s[ā]	'what'
-s(ē)	{case suffix (instr. transform.)}
sēmh ^o a / h ^o ēmsa	'muscle, sinew, intestine'
sika (s ~ cw ; i ~ ē, ī, ā ; k ~ kw)	'wineskin'
sĩʔwa	'soul, breath'
[sĩl ₁]	'light (of weight)'
[s]ĩno	'long bone'
sǒ1a (1 ~ ʔ)	'rye, oats'
-[s] ₁	{case suffix (elative)}
sāmsa	'(a kind of) insect'
swěna (ě ~ ỹ)	'southern slope; hill'
swir ₁ a / swirswa	'throat, gullet'
swūm ^o a (ŏ ~ h)	'lamb'
śa ^o rHa	'street, village'
śīna (ī ~ ū)	'blue, green'
ś[u]na	'year'
świʔa	'sheep's dung'

świtt['] _Λ	'gravestone, grave'
śwǎrd _Λ	'night, evening'
śina _Λ [kw] _Λ	'puppy'
śüñq'i	'gum, ink'
ś _Λ lŋ _Λ (ŋ ~ h, ħ, l ~ t)	'light, ray'
ś _Λ °mŋ _Λ (ŋ ~ h, ħ)	'(a kind of) odorous grass'
śwa _Λ	'last year'
świmʔ _Λ (? ~ h)	'three'
śwa _Λ (N)H _Λ	'barley, bread'
šat _Λ (a ~ ə)	'worm, snake'
šēm _Λ (h ~ ħ)	'lamb, kid'
šimiš _i (both i ~ ü, ĩ)	'fringe, braid'
šišat _Λ	'sack; clothes'
šōr _Λ	'lake; river'
-š _Λ (š ~ šw, ʌ ~ ʌ)	[nominal suffix (obl. base pl.)]
šalH _Λ (a ~ i, ɛ, ʏ, l ~ t)	'wax'
šw _i ž _Λ (š ~ ž, ʒ, ʒ ~ ʒ)	'bug, tick'
-šw _Λ	[case suffix (elative)]
šar _Λ	'whey, buttermilk'
šāxw _Λ (š ~ ś, ā ~ ə)	'mold, pus, rust'
ši _i	[an interrogative pronoun]
šik' _Λ / k'iš _Λ (š ~ ś)	'sweetbrier, eglantine'

šind _Λ	'gutter'
š[ī]r _Λ	'worm'
šī ^o wt' _Λ / šī ^o mt' _Λ	'whistle, pipe'
šūr _Λ (ū ~ ö)	'curds, milk'
šūlk' _{wΛ}	'hoof'
š _Λ k['] _Λ (š ~ ś)	'a little bird'
š _Λ k' _Λ	'muscle'
š _Λ l _Λ t' _Λ (H _Λ) (l / r)	'lizard'
š _Λ nH _Λ	'milk; udder'
š ^o t _Λ (š ~ ö)	'sock'
-šw[i]	[gerundive and conditional suffix]
šw{t}h _Λ	'tomorrow'
šwirʔ _Λ	'nest, village'
ta ^o j _Λ	'foal'
tāk' _w (ā ~ ē)	'(a kind of) vessel'
tš ^o l[ʔ] _Λ	'a component of a spindle (or loom)'
talqan _Λ (both a ~ ə, ö)	'prince, free man'
tš _w C _Λ	'bug'
ten ^λ ' _{wΛ}	'weasel'
tš ^o t _Λ	'dirt, dust'
Hētārc' _{wΛ}	'dirt, swamp'
tār _Λ (ə ~ ʔ)	'dirt'

tirunga	'spindle'
tšmhi (i ~ ʃ, ʉ)	'sinew'
tuja	'spittle, saliva, to spit'
-ta	[nominal suffix (dir. base pl.)]
tānta	'soft, liquid'
-da	[durative suffix]
dālza (ā ~ ǣ)	'butter'
dānʕa (ʕ ~ ʔ, h)	'cheek, gums'
[daqʷa]	'back of the head'
dāro (o ~ ə)	'tree (coniferous)'
dadā (ā ~ ǣ)	'father, grandfather'
-dē	[conditional suffix]
-dē(ja)	[nominal suffix (obl. base sing.)]
dɨk'wi (d ~ dw)	'millet, rice'
d[o]	'thou'
domba (d ~ dw)	'tail'
dölögä (2nd ö ~ ǝ)	'marten, weasel, bat'
durea (d ~ r)	'son-in-law'
da (/ta)	[interrogative pronoun]
-da	[case suffix (inst. erg.)]
-da	[locative (lative) suffix]
-da (-da)	[nominal suffix (dir. base pl.)]

[dʌqwa]	'cock'
dʌhwa	'flower'
dʌ[ɭ]ʒʌ (d ~ dw)	'tree, wood'
dʌm[χw]ʌ / [χw]ʌmdʌ	'sweat'
dʌqʼʌ	'he-goat, kid'
[d]χtwʌ	'zinc, silver'
dwaṭɪ	'stick'
dwanHʌ	'sheep, ram'
dwaṭrɪqʼʌ	'bank, valley, plain'
-d(w)ɪ	[adjective suffix]
dwanɪkʼʌ	'pit'
tʼamqʰ[ʼ]ʌ	'arc, bow'
tʼənhʌ	'nit'
tʼəpʌ	'(a kind of) vessel'
tʼəqʌ (ə ~ ɐ)	'hive, tub'
tʼətʌ	'thorn'
tʼətʼʌ	'cap'
tʼəntʼʌ	'freckle'
tʼʂmtʰ	'fly (insect)'
tʼihwʌ / hwitʼʌ	'little'
Hɪtʼɪm(ʰ)ʌ	'wing, feather, butterfly'
tʼimʌwʌ	'pimple, blotch'

t'išwλ (i ~ ɛ)	'lead (metal)'
t'ʃʌλ	'finger'
t'ɪmʰλ	'(a kind of) bird'
t'ɪrɪχλ	'(a kind of) foot wear'
t'[o]nλ	'crib, manger'
t'ðt'λ	'flower'
t'up'λ (t'u ~ t'wə)	'finger'
t'urɕē (u ~ o ; ɕ ~ ʃw ; -ɪrɕw-)	'a little stone, charcoal'
t'ut'ē (u ~ o)	'grapes, gooseberry'
t'ü'nk'o (o ~ ɔ)	'drop, spray'
[t'χ'omλ]	'kernel (of a fruit)'
t'ank[']λ	'freckle, birth-mark, bead'
t'arhλ (r ~ l ; h ~ ʰ ; -rw-?)	'bridge'
t'wɛʃʌ (ɕ ~ h, ʰ)	'stick'
t'wɛr't'λ	'(a kind of) food'
t'wɛr[?]i	'nipple, pimple, wart'
t'wɔ̃lq'w'λ / q'w'ɔ̃lt'wλ	'ankle; skin, calf (of the leg)'
t'wλ'ʰwλ	'leg, front leg'
β'urλjλ	'foal, horse'
β'u'ɔ't'λ	'short-eared ram'
β'λλλ	'pitchfork'

у	[class marker (1 sg.)]
у[а]лаqe (л ~ ł)	'hearth'
уалеа (а ~ ə)	'jackdaw, magpie'
уе	[demonstrative pronoun]
уеlga	'burdock, nettle'
уѣnc'ł	'ten'
уѣrgi	'seven'
уidwarа	'grain'
уintа	'whey, sour milk'
уđ (đ ~ ə)	[interrogative particle]
уđ	'thou'
-уа	[case suffix (dat., instr.)]
-уа (у ~ u)	[case suffix (elat.)]
[у]лiс'wt	'nine'
[ūаlbа]	'pigeon'
уа[r]xe[św]а	'hawk, kite'
уаrасa	'a kind of vessel'
veļpī	'felt, felt cloak'
w	[class marker (3 sing., 1 / 2 pl.)]

wǎžʌ (w ~ b)	'enclosure, shed, ganary'
wǎčʌ	'stone'
wānʌwʌ	'luck'
wāʰrʌʷə	'pig, swine'
w[ā]rtʃ (ʃ ~ ü)	'top'
Hǎwǎrʌʷ (w ~ b)	'large intestine'
wǎlʃ(w)ē (1st w ~ b)	'calf, bull-calf'
wǎmcʌ (w ~ b ; ǎ ~ ǎ ; c' ~ c'w ; wǎmcʷʌ)	'liver'
wēnʌʷ(ʌʌ)	'head'
w[ǎ]nχʌe (e ~ a)	'udder'
wēqʰā	'sheep, ram'
[wēχʌ]	'grass'
Hǎwǎrʌʷ (ǎwǎ ~ ǎwǎ)	'edge, outer angle'
wǎχʌ (w ~ b)	'neck'
wǎmcʰo	'moon'
wānsʌ	'knife, sickle'
wərqʌ	'tail (of a sheep)'
[w]ərχʌ (ə ~ ə ; χ ~ q)	'bridle'
wəχʌ (w ~ b)	'pelvis, hip, buttock'
[w]īčʷʌ (ī ~ ī)	'wet, green'
wiʰlčʰe	'calf'
wilqʰərʌ	'lamb'

w[ī]mq'ʌ (w ~ b)	'witness; truthful'
wīnλə(λʌ)	'boar; (a kind of) rodent'
wīraəʌ	'sun'
wīrʂwīnʌ	'place, nest'
wīce / cīwe (e ~ a)	'mountain'
wīcʌ (w ~ b)	'grass'
wīlʰʌ	'malt, oat flour'
wīlq'we	'place'
wīldē	'rider, horseman'
wīlʒwʌ	'pasture'
wīrχʰʌ	'wild goat'
wīsʌ	'sunny slope'
wīswʌ (s ~ ś)	'deer'
Hōwōhʌ	'ram, he-goat'
wōlʒwʌ (1st w ~ b ; ō ~ ɔ̄ ; l ~ n)	'(a kind of) cereal'
Hōwōrʰwʌ(ʰʌ) (1st w ~ b)	'snake, worm'
wōkʌ (w ~ b)	'skin'
wōrʰōwʌ	'hundred'
wōhʌ (1st w ~ b)	'(a kind of) grass'
[wʌ]gwōnʌ	'loot; stock (of meat)'
wʌʰʌ (w ~ b)	'corner'
w[o]lq'ə (ə ~ ā)	'barley'

wamgwara (1st w ~ b)	'cake'
wamwa (w ~ b, j, ɣ ~ ɔ)	'tribute'
wank'wa	'corner, bend'
waxwa	'line'
warada (w ~ b, bw ; d ~ dw)	'stick'
wafamk'a	'(a kind of) grass'
xaxama (both a ~ ə, ɔ)	'gums; lip'
xat'a (x ~ λw)	'mitten'
xara (ā ~ ǝ)	'hollow, cavern'
xina (x ~ λ, λ ; ɨ ~ ɨ̃)	'butter, fat, grease'
xotne	'pitchfork'
xarxa	'mucus, saliva'
xwama / xwamxwa	'foam, liquid'
xwɨmc'wɨ (ɨ ~ ɔ)	'dirt, swamp'
xwɨr'a (ɨ ~ ʔ)	'(a kind of) berry'
xwɔlha	'bosom'
xara	'wind'
λɨra / xɨrda	'woman, female'
ɨinɨ	'water'
xə	[interrogative pronoun]
xwar'a (ɨ ~ h, h)	'bottom'
xwɨr-Hi	'(a kind of) leaf-bearing tree'

ᵂᵂᵂ	'together, close'
ᵂᵂᵂᵂᵂ (ᵂ ~ ᵂ)	'sineu'
ᵂᵂᵂᵂᵂ (ᵂ ~ ᵂ)	'(a kind of) tree'
ᵂᵂᵂᵂ	'foot, trace'
ᵂᵂᵂ	'wing'
ᵂᵂᵂᵂ (ᵂ ~ ᵂ)	woman
ᵂᵂᵂᵂ	'sheath, case, loop'
ᵂᵂᵂᵂᵂ	'arrow'
ᵂᵂᵂᵂ	'elbow'
ᵂᵂᵂᵂᵂᵂ	'lizard'
ᵂᵂᵂᵂ (/ [j]ᵂᵂᵂᵂ)	'snow'
ᵂᵂᵂᵂᵂᵂ (ᵂ ~ ᵂ, ᵂᵂ ; ᵂ ~ ᵂ)	'bread, corn'
ᵂᵂᵂᵂᵂ	'wind'
ᵂᵂᵂ[ᵂ]ᵂᵂ-	'sift, filter, strain'
ᵂᵂᵂᵂᵂ (ᵂ ~ ᵂ, ᵂᵂ ; ᵂ ~ ᵂ)	'firewood'
ᵂᵂᵂᵂᵂ (ᵂ ~ ᵂ)	'roe'
ᵂᵂᵂᵂᵂᵂ (ᵂ ~ ᵂ)	'barley, straw; waste of corn'
-ᵂᵂ	[nominal suffix (dir. base pl.)]
ᵂᵂᵂᵂᵂ (ᵂ ~ ᵂ)	'bottom, foundation'
ᵂᵂᵂᵂᵂ	'roe, chamois'
ᵂᵂᵂᵂᵂᵂ (ᵂ ~ ᵂ)	'seed' (< *ᵂᵂᵂᵂᵂ- 'to sow')
ᵂᵂᵂᵂᵂᵂ	'dung; pus'

χamΛ	'skin, cloth'
χa ^o nħΛ (ħ ~ ʔ)	'whey'
χe ^λ 'wΛ (e ~ ü)	'nut'
χēnχwΛ (χ ~ q)	'molar, canine tooth'
χērΛ	'meadow, grass'
χē ^o rχΛ	'gravel, road metal'
χə́tΛ (ə ~ ə)	'stalk, grass'
χəwγΛ	'onion'
χ̄t̄lśΛ / χ̄t̄lśΛ-	'to change'
χ̄tmχΛ	'lamb'
χ̄tnk'̄t̄	'khinkal'
χ̄ōnħΛ (ħ ~ ʔ ; n / m)	'beads'
χump'Λ	'mouthful'
χüwx(w)o (χ / q ʔ i ü ~ i)	'nut'
χwə[lcw]Λ	'spider'
[χwemqΛ]	'stone'
χwēmt'Λ (~ ʔ, ə)	'hook'
χw̄t̄HΛ	'simulation, pretense; anger'
χw̄vli (i ~ e)	'fat, grease'
χw̄tmχΛ	'check; buttock'
χw̄vr[śś]Λ	'marten, squirrel, otter'

χω ^o ρα	'village, farm'
χα ^o κα[ρα] (α ^o ~ α ^o)	'bat'
χα ⁿ λῖ (α ^o ~ α ^o ; λ ~ λ; ῖ ~ ῖ)	'guest'
χῆλα (ῆ ~ ῆ; λ ~ λ)	'thread'
χᾶμα	'hand; handful'
χᾶνῖ	'door frame; door, yard'
χῖνός (ι ~ ῖ)	'check, jaw'
χούρα	'a wooden vessel'
χ ^o τῆ	'crumb; stripe'
χ[ῶ]λα (η ~ ῖ)	'pack'
χῶνός (ῶ ~ ῖ, ὀ)	'obstacle, trap'
χ ^u ρτα (χ ^u ~ χ ^u)	'foam, scum'
-χα	[locative suffix (ad.)]
χα ^o τῆς (τ ~ λ)	'male, husband'
[χα ^o μός]	'rubber'
χω ^o μαῖς (τ ~ λ)	'fish'
χω ^o ς (ε ~ α)	'dog'
χω ^o ρα[λα]	'straw'
χω[ῶ]ρα	'flour, meal'
χω ⁱ ρῶς (ι ~ ῖ, ῶ)	'trousers'
χω ⁱ ρκα	'(a kind of) tree'
χω ⁱ ρ ^u	'mill'

χωῶ <u>̇</u> † _Λ	'stack, heap of sheaves'
χωῶ <u>̇</u> † _Λ	'cow'
χωῶ†† _Λ († ~ †, h)	'arm, sleeve'
χωῶ <u>̇</u> † _Λ	'palate'
zōr <u>z</u> _Λ	'tremble'
Hāzwā <u>̇</u> † _Λ († ~ †)	'female, bitch'
zā <u>r</u> _Λ	'ice'
zō <u>w</u> _Λ	'you (pl)'
zō <u>w</u> _Λ	[demonstrative pronoun]
zāl† _Λ († ~ †, h)	'flst'
zā	'that'
zō	'that'
zōilerzō <u>w</u> _Λ	'spleen'
zōā <u>̇</u> † _Λ († ~ †)	'god'
zōānē(u) _Λ	'snow-storm'
z[ā](N)† _Λ - (z ~ c')	'drink'
zālH _Λ	'plain, plateau'
zīmīz _Λ	'ant'
zō <u>̇</u> † _Λ (z ~ h)	'healthy, whole'
zōn <u>̇</u> † _Λ	'navel'
Hāzōwār† _Λ († ~ e)	'star'

звѣрѣ	'name'
звѣ́жѣ	'female'
зѣ́гѣ	'dew, rain, hail'
зѣ́ѣ	'what'
звѣ́ѣ (ѣ ~ ѣ?)	'fringe, mane'
зѣ́мѣ (ѣ ~ ѣ, ѣ)	'mouth, chin'
зѣ́ѣ	'self (1-2 cl)'
зѣ́мѣмѣ (зѣ ~ зѣ, зѣ, зѣ, зѣ)	'spindle'
зѣ́	'we (excl)'
зѣ́мѣмѣ	'rotate, rotation'
зѣ́мѣмѣ	'swine, pig'
зѣ́мѣмѣ (зѣ ~ зѣ ; зѣ ~ ѣ)	'bellows, wineskin'
зѣ́[ѣ]мѣмѣ	'kidney'
зѣ́мѣмѣ (both зѣ ~ зѣ)	'ant, bug'
зѣ́мѣмѣмѣ	'cornel'
зѣ́мѣмѣ (зѣ ~ зѣ ; зѣ ~ ѣ)	'wattle-fence'
зѣ́ѣ	'now, today'
зѣ́мѣмѣ (зѣ ~ зѣ)	'sheaf'
зѣ́мѣмѣмѣ (зѣ ~ ѣ)	'herd, flock'
зѣ́[к']мѣмѣ	'short'

ʔa	'that, this'
Haʒʌ (a ~ ɛ, ʔ, ʒ ~ z)	'chisel'
Haʒʌ- (a ~ ə)	'guard, graze'
ʔ[ə]ʕʌn-	'go, lead'
ʔaʕʌ-	'take, carry'
ʔaqaʌ-	'see'
ʔaəwəʔʌ	'side'
ʔəʕʌ-	'hold, take'
Həhʌ	'little, few'
ʔajʕʌ- (a ~ ə)	'go, come'
ʔəkʌ- (ə ~ ə)	'beat, forge'
ʔəkʌ-	'tremble, shake'
ʔakʷʌ- (a ~ ə, ʕ)	'roll, rotate' (< kʷɪrʌ 'something round')
ʔəʔʌ	'dress, clothe'
Haʔg(w)ʌ- (a ~ ɔ, ə)	'wrap'
ʔ[a]ʔqʷʌ	'rot'
ʔʕʔʌ (ʔ ~ h, ʕ)	'branch'
ʔaʔkʌ- (a ~ ə)	'limp' (< ʔʌnkʌ 'lame')
ʔəʔʕʌ (ə ~ ə)	'wool'
ʔʕmcʌ-	'know, see'
ʔamqʌ	'garden'
Hamqʕʌ-	'pass, cross'

ʔamqʌmʌ	'beam, log'
Hamqʌ-	'beat' (< rǎmqʌ (/rǎrqʌ) 'wound')
Hāmχʷʌ-	'paint, smear'
ʔǎnzʌʔ[Hʌ] (z ~ z)	'ashberry, cornel'
ʔa[n]ɕʷʌ- (a ~ ɕ)	'break, destroy'
ʔa[n]χʌr-	'lie, fall'
ʔānʌjʌ	'mother'
[ʔa]pʰitʌ	'tree-fungus, tinder'
Hǎqʷʌ- (ǎ ~ ə)	'rub'
ʔaqʷʌr- (ə ~ ɕ, ə)	'hang'
Haramχʷʌ-	'shave, clip'
Haraswiǎ- (both a ~ ə, ɕ)	'tremble'
ʔarəʷʌ(n)- (a ~ ə, ɕ)	'see'
ʔarkʌ- (a ~ ə, ɕ)	'walk, run'
ʔərɣʌr- (ə ~ ə, x ~ ʌ)	'sweep'
Hǎ[r]ʌwʌn-	'be alike, be even'
Hə[r]χʷʌ (ə ~ ə)	'big, enough'
ʔārχʌ	'far'
ʔārɕʰʌ-	'to skin'
Hasʌn-	'to glue' (> sinʌ (i ~ ü) 'glue')
ʔadʌ (a ~ ə)	'butt, beat'
ʔadʌ (ə ~ ə, ɕ)	'naked'

ʔadʌjʌ	'(grand)father'
[ʔa]dʌjʌ	'mother, aunt'
Haχʌ- (a ~ ɛ, ʔ)	'scold, be angry'
Həχʰʌr- (ə ~ ə)	'know'
Həχʰwʌ- (ä ~ ɔ)	'take off'
ʔəʒʌ (a ~ ʃ, ɔ)	'to be ill'
ʔäʒwʌtʌ (ä ~ ə, ɔ)	'(a kind of) tree'
ʔɛcʰwʌ	'sour, raw'
Hɛcʰwɛm̃	'bone of the leg, shin, ankle'
Həhʰʌ-	'move, transfer'
[ʔɛ]hʰwʌn-	'loose'
[ʔɛ]kwʌ-	'itch'
Həɛʃʌ (ɛ ~ ɔ)	'wake'
Hɛʃʰwʌ-	'call, cry, sing'
Hɛʃʰ(w)ʌ	'half, middle'
Həɪɛʃʌ (ɪ ~ ɪ)	'night, evening'
[ʔɛ]ɪkwʌr- (ɛ ~ ɛ)	'set fire'
ʔəɪ[ʰw]ʌ-	'tear, tear away'
ʔəɪɪʌr-	'boil'
ʔɛ[ɪ]ʒwʌ- (ʒ ~ ʒ)	'dry up, roast'
Həmɛʰwʌ	'whey'
Həmšwʌ	'stop up, plug'

Hǎmx ⁰ wa-	'grind' (< ʔǎmx ⁰ wa ⁰ 'mill')
ʔēma (ē ~ ǝ)	'uncle (father's brother); father'
Hǎgǎnā (either ǎ ~ ǎ)	'leg, knee'
ʔǎn ⁰ raʔi	'cavern'
Hēnq ⁰ wa	'meadow, plot'
ʔǎq ⁰	'grapes, fruit'
Hǎqwa	'yellow'
[ʔǎ]rǎmkwǎ	'dung, excrement'
Hērǎmq ⁰ ǎ (ǎ ~ ǎ)	'road'
Hērǎnc ⁰ wǎ	'string'
Hērǎqwa-	'ask'
Hērǎǎ'wǎ	'yoke'
Hē(r)ǎ'-	'plow, till, sow'
Hǎ(w)c ⁰ -	'stand'
ʔǎwǎ(w)ǎ-	'open'
ʔ[ǎ]xǎ-	'put, lie'
ʔ[ǎ]xǎ-	'hang'
ʔ[ǎ]cǎ(n)-	'take, seize'
ʔǎhwa-	'make, do'
Hǎlǎ	'short, narrow'
ʔǎk ⁰ wa[n]-	'beat, peck, pick, scrape'
ʔǎlqǎ-	'rise, be high'

Həlq'wə	'alien, somebody else's'
Hə'm[k'w]ə-	(?) 'squeeze, press'
ʔəməwə (ə ~ q, ə)	'(a kind of) cereal'
Hʃ[m]χ'wə-	'get cool, get cold'
ʔə[n]χ'wə-	'scold, quarrel'
Hʃrʃn'wə	'(a kind of) tree'
ʔ[ə]r'xə-	'go enter'
ʔə[r]q'wə- (ə ~ ə)	'suffice'
ʔərq'wə-	'close, shut'
ʔər'twə-	'to fly'
Hə'tə-	'move, go'
Həxəmə	'string (made of leather)'
Həχwə	'bottom'
ʔ'x	'this'
Hi'ə- (i ~ u)	'sell, distribute'
ʔi'ʒwə[n]-	'twist, bend, wind'
ʔi'fən	'bind, knit, tat, weave'
Hər'ʒ'wə	'girdle, belt'
Higwə-	'lose, get lost' (< gw'ʔə 'thief')
ʔi'xə-	'give'
H'xə- (i ~ u)	'say, call'
ʔi'əwə-	'dry up, dry'

ʔikwʌn-	'eat'
ʔigwʌr-	'bend, fold'
ʔiʃʌ-	'put'
Hʔʃʌ-	'lead'
Hʔʃʌʔwʔʔʌ	'root'
Hʔʃʌn	'twirl, turn around'
[ʔʔ]ʃʌ-	'praise'
ʔ[ʔʔ]ʃwʌr-	'lick, smear'
Hʔʃ(ʔ)ʃʌn(n)-	'read, count'
[ʔʔ]ʃʃʌ	'narrow'
Hʃʃwʌn-	'stay'
ʔʃʃkʌr-	'listen, talk'
ʔʃʃkʔ(w)ʌn-	'write, read'
ʔʃʃʌ (~ ü)	'lower'
[ʔʔ]ʃʃʌn-	'turn round, wind, reel'
[ʔʔ]mʃʌ-	'speak, tell'
Hʃmʃʃʌ	'green, unripe'
ʔ[ʔm]kʔwʌ-	'set fire, burn'
Hʃmqʔ(w)ʌ-	'touch'
Hʔmqʔʌ	'divide' (< rʔʃ(m)qʔʌ 'part')
[ʔʔm]ʃʌ-	'know, be able'
ʔʔmʃ[w]ʌr-	'knit, weave, spin' (< rʔʃ(m)ʃwʌ 'loom')

Himʔa[r]-	'soak, melt'
[ʔin]ʕ'wɔrtʌ	'mint'
Hin [̃] xwʌ-	'love, want'
Hĩnĩswũ	'cheese'
Hinq'wʌ (i ~ ɨ, q'ow)	'bend'
Hinda- (i ~ u, ē, ɨ, ɔ)	'love, want'
Hinzwʌ-	'wash'
[ʔi]oʌ-	'get cold, be cold'
ʔ[i]oʌr-	'hold, catch'
Hȳq'ʌ- (ȳ ~ ü)	'know'
Hiq'wʌ-	'sit, be'
Hȳq'owʌ	'back, waist, middle, between'
Hi(r)é'wʌ	'go down; enter'
ʔ[i]rtʌr- (f ~ ʌw)	'sift'
ʔir'owʌ-	'roll'
Hiroʌr-	'get cold'
ʔirĩk'wʌ	'bore, dig'
Hirinfȳ (ȳ ~ ɛ)	'road, path'
Hirĩnəwʌ	'ash, soot'
Hirĩ(w)ʌ-	'cut' (< Harʌsʌ 'knife')
Hir [̃] xwʌr- / Hir [̃] xʌr-	'deceive'
Hir [̃] x'wʌr- (x' ~ ʕ)	'slaughter, kill'

H _i rowal- / H _i rχwal-	'slaughter'
H[i]rq'ar-	'reach, come to'
?irq'wal-	'ripen'
?i(r)q'wal-	'split, break'
?irq'war-	'tear, break'
Hir ^t (w)al-	'pester, bother bore'
?irχwal-	'speak, ask'
Hi[r]χwal- / Hi[r]qwal-	'die out'
Hisirā	'(a kind of) vessel'
?išwt(?) _h	'whistle'
?[i]tārgū	'hawk, kite'
?i[w]ā'ar-	'die, kill'
Hīxal-	'be, become'
?ixwal	'go; flow'
Hīχal	'swift'
?ixwal	'sew' (< wirχwal _h 'tread, string'; xwōl _h 'carpet, rug')
Hīgwal- (ī ~ ū)	'fall, crumble'
Higur	'filter, strain' (< g _{ur} al _h 'filter')
?igwaln-	'strain, suck'
Hig [?] war-	'go, move'
?i _i čwal	'brother, sister'
Hīχwīmā	'wind, air'

Hĩmĩrλā	'deep'
Hĩndwλ	'forehead'
Hĩq'λ-	'be hungry, starve'
ʔĩrcλ	'wood, firewood'
Hĩrĩλ	'straight, equal, similar'
Hĩrĩnkwx	'willow, bush'
Hĩrλwλ	'male'
[ʔĩ]šwλ	'son, daughter'
ʔĩšλ	'thick, dense'
ʔĩxwĩrλ	'bridle'
Hĩʔwλ	'edge, point' (< Hλʔwλrλ 'sharp, pointed')
ʔo	'that'
Hoč'λ (č')	'run'
Hšx'λ-	'be, become'
Holox̃ (l ~ ʔ)	'sleeve; wing'
Holox̃'è	'arm'
Hox'wλr-	'go, come'
ʔox'wλ- (q'w ~ ɔ'w)	'sink'
Hox'wλ-	'lose, be defeated'
ʔš(r)swλ-	'sit'
ʔox'λ-	'descend'
[ʔo]t'λ-	'divide' (< wot'ā 'part')

ʔoʎA-	'speak, take arguments'
HöcA (c ́ cʷ)	'dark, blind'
HöʕöwAɬA	'side'
HööwA	'thick, dense'
Höʎonā	'hem (of a garment)'
Höʎ'A-	'hold, detain'
Höʎ'(w)A- (ʎ' ~ ʎ')	'sweep'
Höʎ'wA-	'beat'
HöɬʎA	'stomach, part of stomach'
ʔ[ö]ɬqʷwAɬ-	'close, do up'
ʔ[ö]ɬtʷwAɬ-	'tear down, tear off'
ʔöɬxʷwA- (ö ́ ü, ē)	'take, gather'
HömA	'awl'
[ʔö]nc'A	'give, compensate'
Hönʎ'A-	'go, come'
Hön(ö)kʷwA	'little finger, finger'
HönqʷwA (n ́ ɬ)	'lead'
HöqʷAɬ-	'cut, split'
ʔ[ö]rkAɬ-	'fall'
HörɬA-	'weave'
Hör't'A-	'sting, sting into'
ʔ[ö]tʷwAɬ-	'curdle, coagulate, rot' (< tērtʷwAɬɬA) 'sour milk/cream')

Hōt'Λ	'straight'
Hōχlōnā	'(a kind of) alcohol'
?ūχΛn-	'hang'
HōχwΛ- (ō ~ ē)	'stay'
?ōcΛ-	'mow' (< cōtΛ 'scythe')
?ōχwΛ-	'reap'
?χg(w)Λ	'play'
?ōqwΛ-	'burn'
Hōχ'ōnū	'bottom'
?ōlōwΛ-	'think'
?ōlōχwχr-	'cacare'
Hōlōqχn-	'destroy, break, scatter'
HōmχΛ-	'put on (trousers, shoes)'
Hōχōmā	'drizzle, rainy season'
HōnōwΛ-	'do up, stop up'
HōnqΛ(lΛ) (ō ~ ē)	'old (of a person)'
?ōbΛjΛ	'father'
?ōrcΛ- (r ~ l)	'wash, flow'
?ōrsΛr- (s ~ śl ō ~ ē)	'to fly'
?ōbΛ-	'smear'
?ōχōwΛ-	'preserve, guard, pasture'
HōΛΛ- (ō ~ ē, ō)	'laugh'

ʔə́ʒ(ʷ)ʌ-	'pour, weep'
Huβʌ (u ~ o i b ~ ʷ)	'orphan'
ʔuʒwʌ[1]	'emit, gush forth, flow'
ʔijəʷʷʌn-	'tremble, be afraid'
Hüʌqʷʌ-	'run'
[ʔü]nɛ'wʌr-	'stand, stand up'
ʔ[ü]nʒʌ- (n ~ l)	'plow, sow'
ʔü[ɪ]ɬwʌ- (ɬ ~ q)	'take out'
ʔütʷʌ-	'beat'
ʔüʃʌ-	'be wet, soak, pour, wash'
[ʔü]χʌ-	'break'
-ʔʌ	'locative suffix (in)'
-ʔʌ (ʔ ~ ʃ, ʒ)	'negative suffix'
ʔʌɛ'ʌ-	'drive, urge'
Hʌɛ'ʌr-	'congeal' (< ɛ'ērʌ- 'ice, hoar-frost')
Hʌʒʌ-	'grow'
Hʌɛʌrʔʌ (ʔ ~ ʒ)	'thick, dense, fat'
Hʌɛʌrʌ (ɛ ~ ɛ')	'green, variegated'
Hʌʒwʌw- (ʒw ~ ʒ)	'splash, sprinkle' (?)
Hʌɛ'(m)ʌ	'good'
Hʌq(ʷ)ʌ-	'sharpen, sharp'
Hʌʒʷʌ-	'drink'

H ₂ χ̌χ ₂ (n)-	'look'
H ₂ χ ^o χ	'hard, rigid'
H ₂ χ ₂ (χ ~ χ ^o ω, χ ₂ ω)	'shine'
H ₂ χ ₂ χ ₂	'(a kind of) cereal'
H ₂ χ(ω) ₂ - (1st χ ~ χ ₂)	'grow'
H ₂ χωχ ₂ -	'speak'
H ₂ χ ^o χ ₂ -	'be sick'
H ₂ χ ^o χ ₂ ω-	'take'
H ₂ χ ^o (ω) ₂ -	'put'
H ₂ χ ^o χ ₂ ω-	'fall'
(χ ₂)χ ^o ωχ ₂ (r)- (r ~ -r-)	'winnow'
H ₂ χ ^o [χ ^o ω] ₂ χ ₂ -	'rumple, crumple'
[H ₂ χ ^o ωχ ₂ ω-]	'kill'
[H ₂ χ ₂ χ ₂]	'prince'
H ₂ χ ₂ χ ₂ -	'crawl'
H ₂ χ ₂ χ ₂ - (χ ^o ~ χ̌)	'run, leap'
χ ₂ χ ^o χ ₂ χ ₂ -	'wash, weep'
χ ₂ χ ₂ χ ₂ χ ₂ χ ₂ -	'to measure, weigh'
χ ₂ [χ ₂]χ ₂ -	'rare'
H ₂ χ ₂ χ ₂ χ ₂ - (/H ₂ χ ₂ χ ₂ χ ₂ -)	'bend'
H ₂ χ ₂ χ ₂ χ ₂ -	'sew, spin' (< ω ₂ χ ^o χ ₂ ωχ ₂ χ ₂ 'thread, string'; luk ^o χ ₂ χ ₂ χ ₂ 'needle')
χ ₂ χ ₂ χ ₂ χ ₂ -	'to bark'

H _Λ lq'Λ-	'spoil'
H _Λ lǰΛ- (ǰ ~ ǰ')	'to rain'
H _Λ lΛλ'wā	'back; chest'
Hχmǰ:Λr-	'bake, roast'
H _Λ [m]θ ^u wΛ-	'go'
H _Λ mʂΛ[r]-	'be silent, quiet'
H _Λ [m]χ ^u ʂΛ-	'play'
H _Λ m _Λ θā	'thirst, be thirsty'
H _Λ m _Λ rǰā	'flame, wick'
HχnkʂΛ- (/HχkʂΛn-) (χ ~ χ̃)	'right'
H _Λ [n]χ'Λ- (χ' ~ χ̃')	'sleep'
HχnǰΛ-	'to milk'
Hχnāχ ^u ā (χ ^u ~ ǰw)	'shame, fright, vice'
Hχ ^u θΛ- (θ ~ θ, κ)	'to plant'
Hχ ^u θΛ- (θ ~ q)	'pull, drag'
H _Λ θΛn- (n ~ m)	'take, seize'
H _Λ q ^u Λ-	'stand, stand up'
H _Λ qΛr-	'weave' (< qwrH _Λ 'carpet, rug')
H _Λ qΛ-	'stand up, rise, grow'
H _Λ qΛ- (q ~ θ)	'crawl, creep'
H _Λ q'Λr-	'feed' (< rāq'Λ(r _Λ) 'food')
H _Λ q'Λ (q' ~ q ^u)	'rock, slope of a mountain'

H ₂ q'Am- (q' ~ o')	'eat'
H ₂ q'wAn-	'sew' (< wiq'wAnA 'needle')
H ₂ [r]o'AnA	'half'
H ₂ røwA-	'break'
?xrk'Aw-	'drive, urge'
? ₂ o[rk'w]An-	'to swallow'
HArxā	'thresh' (< rexo 'threshing', mīxā 'threshing board')
H ₂ [r]āA-	'pierce, punch, beat' (< xānA / rāxōnA 'chisel, gimlet')
H ₂ r'x'Ar-	'be afraid'
Hx[r]qA-	'drink, suck'
HArA-	'fight' (< rerbA 'war, fighting'; ruBAnA 'wound; pus')
H ₂ [r]sA (s ~ cW)	'dip, wash'
HAršA- (š ~ š)	'rot'
[HAr tA]	'plot (of earth)'
H ₂ A(r)d(w)A-	'pluck, pick, pinch'
H ₂ [r]xwA-	'go, enter'
HArəcA	'wooden plow'
Hx ₂ rāčX-	'weave'
HArgwā	'woman'
HArAmžA	'stack, heap of sheaves'
HArAmxā	'bosom, armful'
?Ar ₂ qā	'ravine, gorge, rock'

ʔāŋ(ʌ)swʌ-	'cut (to pieces); shave'
ʔāŋʌλ(w)ʌw-	'fall, pour, descend'
Hʌŋʌλwʔ (ʔ ~ ʕ)	'sea'
Hʌɛʌŋ-	'beat'
Hʌŋʌ	'drive, send'
Hʌŋɔwʌ	'wedding'
Hʌsʌ-	'take, catch'
Hʌsʌŋ-	'melt'
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Hʕtʔʌŋ-	'run'
ʔātʔwʌ- / tʔwātʔwʌ-	'pour, soak'
ʔʌwɔʔʌ-	'plane, hew'
Hʌwsʌŋ-	'sleep, lie down, dream'
ʔāwʌwʌ-	'be warm'
[Hʌxwʌŋ-]	'curse, swear'
Hʌλʌ-	'give birth, bear'
Hāλwʌ	'whetstone'
Hāλʌ-	'begin'
Hʌχʌ	'shed'
Hʌχʌ-	'carry'

ʔ ^h χwΛ-	'believe'
hΛʔwΛn-	'go'
ʔΛʔwΛn-	'be quiet, sit'
hΛʕΛ(n)-	'to rumple, felt, full'
ʔwaramχā-	'cry, make noise'
ʔwǎlčΛ (ʔ ~ ʔ ^o , h ^o , h ^o , ʔ)	'hen'
ʔwēnΛ (ʔw / ʔ)	'wind, whiff, sound'
ʔwǒlΛ	'hole, opening'
ʔwǝǝnΛ	'day'
ʔǝlgwΛ	'lamb'
ʔwōlgΛ	'component of a spindle, spindle'
ʔΛħwΛrΛ	'hound, greyhound'
ʔ ^o ǝrśwΛ	'belt, leather string'
ʔ ^o ǝrcō	'silver'
ʔ ^o ɪrΛ	'red'
[ʔ ^o]i(r)bΛ (i ~ ʊ)	'sew' (< warǝba 'needle')
ʔ ^o ǝrb(m)bǔ (ʔ ^o ~ j ʔ)	'awl'
ʔ ^o wamt'Λ	'red'
ʔ ^o wǝrʔΛ (ʔ ~ ʔ)	'army, troops'
ʔ ^o wilhΛ (h ~ ħ)	'wheel'
ʔ ^o wɪlʕi	'eye'
ʔ ^o wōlkΛ / (ʔ ^o wō)lōkΛ (ʔ ^o w ~ h ^w , ħ ^w , ʕ ^w)	'lame'

ʔā́c'wā́lš (both ā ~ ǣ, l ~ ʔ, š ~ ʃ)	'voice, sound'
ʔā́lśʌ (ā ~ ǣ)	'(a kind of) vessel'
ʔalχʌ	'hollow, (mountain) pass'
[ʔ]šmbʌ	'coal'
ʔšmsʌ	'sky, cloud; god'
ʔš[n]q'i (i ~ e)	'house'
ʔ[ē]ržwʌ	'thick, dense'
ʔērʌqʌ	'long, high; far'
ʔewex(w)ʌ-	'swell'
ʔā́žā́rʌ (r ~ l)	'colostrum'
ʔā́lśwʌ	'anxiety, anger'
ʔšmʌ'ʌ	'dream'
ʔšc'ʌ-	'be full, fill'
ʔūřwʌ-	'winnow, throw'
ʔʌlś'ʌr-	'to weed' (< ʔā́lś'ʌrʌ 'weed')
ʔʌ[m]šwʌ-	'dig'
[ʔ]ʌnžʌ-	'right'
ʔʌqʌ- (ʔ ~ ř)	'plow, till'
ʔšχwʌ	'bottom'

ʔaʔwa-	'speak, tell'
ʔwēʔʌ	'(a kind of) grass'
ʔinilɕ(w)ʌ	'moth'
ʔʔn(ʔ)ɕwʌ	'heel; ankle'
ʔĩncʌ	'spring, well'
ʔʌncʌ	'earth'
[ʔʊ]aɪkwʌ	'axle'
[ʔʊ]əʔχʌ / [ʔʊ]əχʌʔʌ	'long'
ʔʊʂʌʔʊʌ (/ ʔʊʂʌʔʊʌʔʊʌ)	'slow'
[ʔʊ]ēwχʌ[n]- (ē ~ ü)	'to become warm, hot, catch fire'
ʔʊĩɕ'wʔɪɪχ	'heifer, calf'
[ʔʊ]ɕɪk'ʌ (ɕ ~ ɕ)	'deep; pit'
[ʔʊ]öχwʌ (ö ~ ɕ)	'good'
ʔʊɕnʰwi (ʰ ~ ʔw)	'car'
ʔʊʌmɕ'ʌ	'fright'
ʔʊwēnʌq'wʌ	'hen'
[ʔʊw]ɕɪʔ'(w)ʔ (ʔ ~ ə, o)	'handle, grip'
ʔʊwɪʌ (ɪ ~ ʔ)	'bread'
ʔʊwʌrʌ	'plain, valley'
ʔʂgʌrHʌ (ʔ ~ ʔʊ ; ʂ ~ ʂ, ö, ö)	'near'

ṽṽmqʼʌ (ṽ ~ ʔw)	'throat'
ṽṽncʼʌ (ṽ ~ ʔ, ʔw)	'door'
[ṽ]ṽ[ɪ]cʼʌ (ṽ ~ ʔw)	'naked'
ṽʌmʌʔʼʌ	'thin'
[ṽʌn]čwīlʌ	'green, gray, blue'
ṽṽ[n]qʼʌ	'fumes, stink'
ṽwǎmǎdʌ (/ dǎṽwǎmʌ)	'badger, weasel'
ṽwǎmdʌ	'brain'
ṽwǎ-[cʼ]imṽʌ (ṽʌ ~ hʌ)	'eagle'
ṽwǎlǎṽ (i ~ ǎ)	'mark, sign'
ṽwǎrǎṽʼ(w)ʌ	'bone'
[ṽ]wǎcwʌn-	'become cloudy, dull'
ṽwǎmǎwi (i ~ e)	'caraway'
ṽwiǎbmbʌ	'spring'
ṽwiqʼwimǎ (ǎ ~ ǎ)	'nail, peg'
ṽwi[NH]ʌ	'sheep (pl), cattle'
ṽwǎlʌ	'river, sea'
ṽwǎlǎčʼʌ	'black'
ṽwǎrǎčʼʌ	'meadow'
ṽwǎnsʌ	'hoar-frost, snow'
ṽwǎ[ɪ]ǎʌ (ǎ ~ i, ü, ǎ, ǎ ~ ǎ)	'little, few'
ṽwǎnHʌ (ṽw ~ h, ʔw)	'fat, grease'

ᠰᠤᠨᠬᠠ'ᠠ (ᠰ ~ ᠰ)	'component of a spindle'
[ᠰ]ᠶᠢᠰ'ᠠᠨ- (ᠶ ~ ᠶ)	'press'
ᠰᠢᠷᠠᠩᠠᠨᠠ (ᠰ ~ ᠰ)	'shirt'
[ᠰ]ᠶᠢᠷᠠᠨ- (~ ᠶ, ᠰ)	'beat, chop'
ᠰᠤᠮᠴᠠ (ᠰ ~ ᠰ)	'apple, medlar'
ᠰᠤᠮᠴᠠ'ᠠ	'flour, dough'
ᠰᠤᠮᠴᠠ'ᠠ	'(a kind of) tree'
ᠰᠤᠮᠴᠠ'ᠠ	'(a kind of) grass'
-ᠰ	[nominal suffix (dir. base pl.)]
-ᠰ	[case suffix (lative)]



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Aim and Scope: Application of Mathematical Methods in Research on Linguistics, Literature and Related Areas.

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